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GLEANINGS IN A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS. **BEE CULTURE** ILLUSTRATED SEMI-MONTHLY Published by THE A. ROOT CO. \$1.00 PER YEAR MEDINA, OHIO.

Vol. XXIII.

JAN. 1, 1895.

No. 1.

STRAY STRAWS FROM DR. C. C. MILLER.

HAPPY new-year!

THE WAR IS ON in *Progressive* between the five-banders and the anti-five-banders.

OHIO OFFICERS, I see by the papers, are looking up syrups bleached by zinc poison.

THE HAINAUT Bee-keepers' Association, Belgium, numbers more than 2000 members.

FOUNDATION-MACHINES are getting it down pretty fine to make a septum $\frac{1}{10000}$ of an inch thick. That's 185 thicknesses to the inch.

WOOD SEPARATORS, if loose; tin, if nailed, has been my rule; but perhaps it will be all right to nail wood if only one nail is put in each end.

M. M. BALDRIDGE, St. Charles, Ill., is getting out some interesting bulletins concerning sweet clover, compiled from government reports and other reliable sources.

THE BAKING or scrubbing motion of bees in front of the hive is only for amusement, according to S. E. Miller in *Progressive*. Why not? Or for exercise?

"SYRUPS that have been adulterated with glucose, and preserves that have been sweetened therewith, become a menace to health."—Dr. Eccles, in *N. Y. Med. Journal*.

LATHYRIS SILVESTRIS, growing a few miles from me, was seriously if not fatally injured by the terrible drouth of last summer. Sorry. Sweet clover's the chap for drouth.

SAY, BROTHER A. I., after that performance in flesh-colored tights, described on p. 954, don't you grumble any more about the way they dressed in the St. Joe variety show. "Oh-ow!"

HASTY, in his condensed cream in *Review*, objects to using old bedclothes in percolating feeders. Wants them, "like Caesar's wife, above suspicion and snuffin'." I am with you, Hasty.

REPORTS from Germany say large numbers of dead bees are found as a result of working on

Chelidonium majus. Possibly some of the strange cases of mortality in this country have been caused by working on poisonous plants.

FROM THE WAY C. A. Hatch speaks of that Russian smoker on p. 943, he would hardly approve of my first smoker. It was a preserving-kettle with a tin cover and a rubber tube. It wasn't as good as the Crane!

THE CONTROVERSY, "Ten vs. eight frames," seems changing into "ten frames in one story, vs. sixteen frames in two stories." How about compromising on fourteen frames in two stories? [Better make it $14\frac{1}{2}$, eh?—ED.]

AN ARTICLE in a leading Chicago daily gravely states that dark beeswax comes from Wisconsin, where the bees work on tobacco. [Let's get that Chicago daily to settle for us that vexed question of large vs. small hives.—ED.]

DR. PAUL MARCHAL reports in *Apiculteur* that he dissected 98 workers taken from a hive of laying workers, and found among them 20 containing eggs fully developed, and a goodly number with eggs in various stages of partial development.

SUPPOSE one convention had all essays and another all discussions. Other things being equal, which convention would you attend? [I'd attend the last; but I'd go further to one having the right proportion of both. The essays of the right sort should stimulate discussion.—ED.]

WAX ADULTERATION is hardly as bad here as elsewhere. At any rate, I see mention in *Le Rucher* of a brochure of 16 pages on the principal adulterations of beeswax. [The fact is, bee-keepers of this country wouldn't have adulterated wax, even if cheaper, and none of the present American makers would furnish it.—ED.]

S. M. KEELER, in *American Bee-keeper*, recommends red lead and linseed oil to make inside corners of a feeder water-tight; and the clasps worn by wheelmen, to make your trouser-legs bee-tight. [I have used the clasps myself. I always use them on long pants for wheel-riding; so you see that, when I take a spin to an out-yard, my trousers are bee-tight at the minute of my arrival, and during my stay there.—ED.]

THE ABUSE of a good thing is no argument against its proper use. Like John Handel, p. 944, I've coaxed bees up into the eighth story and had all unfinished sections; but, all the same, when I'm pretty sure bees will fill a second super, I put the second one under. If doubtful about both being filled I put the empty one over.

"FOR MANY YEARS I have warned bee-keepers to watch the sudden checks in honey-flows when colonies had large quantities of larvæ on hand, and to feed, no matter how much old sealed honey the bees might have at the time, because brood is never as well fed as when there is plenty of *unsealed* honey in the brood-chambers."—Wm. EcEvoy, in *C. B. J.*

NOW WE KNOW the object of those long essays. It was to get the papers of St. Joe to print them, as they would print them and wouldn't print discussions. Bro. Abbott, St. Joe papers can get points from our Marengo papers. A horticultural convention was held here lately, and a report of four columns gave the discussions while not an essay was printed, although some good ones were read. But then, our editors have lots of judgment and enterprise.

"HUSBAND AND WIFE should kiss each other, but not on the street-corners, as a general thing," quoth Hasty in *Review*. What business has an old bachelor putting restrictions on the kissing of man and wife? Besides, if he were experienced in that sort of thing he'd know it was a good deal nicer to kiss them on the lips. [You'll have Dr. Peiro after you if you don't look out. He objects to the "lip" part of the job, and he's no bachelor either.—Ed.]

IT TURNS OUT that Doolittle, the champion of brace and burr combs, has been for years using such top-bars and spaces as keep him almost free of the nuisances. He says, in *A. B. J.*, "With such frames and bee-spaces it is a rare thing that any honey is ever stored between the sections and tops of frames, while not to exceed from 5 to 15 brace or burr combs are found jutting above the tops of the frames." If we all get down to 5 or 15 bits of dry wax we'll do not so badly. [So Doolittle is an anti-brace-comb man after all, in practice.—Ed.]

THIRTY THOUSAND, OR, to be more exact, 30,067, is the number of members of the German Central Association for Bee Culture and its branches. I think no bee-keepers' society in this country is so large. [These figures look tremendous when we in our country can not get up a membership of over 100, and that, too, for an association that is somewhat international in character, in the best bee country in the world. Of course, we have great geographical distances to contend with; but this can not account for such a difference. I should like to know how the Germans manage to secure so

large a membership; the conditions of membership, and the privileges.—Ed.]



BEE-ESCAPE.

THE PHILOSOPHY OF THE WORKING OF THE STAMPEDE ESCAPE.

By C. W. Dayton.

Editor Gleanings:—It is admitted (I refer to page 870) that the Stampede escape resembles the original "flood-gate" Poulder, and the "going-toward-the light" Boardman, as closely as if devised by a theorist who had never possessed a colony of bees. Still, by the method of procedure the Stampede might possibly have been produced had neither of these escapes been in existence.

I used escapes very much as toys or curiosities until the season of 1892, when I engaged with Mr. Charles Adams, of Colorado, where about five dozen Porter escapes were to be utilized in our regular work. The following winter there came a discussion of escapes in the *Review*, and it was claimed that an exit which admitted only one bee at a time was as good as a larger exit. It was suggested by the writer that something was lacking in the present forms of escapes, because, when they were in use there was a clicking and crackling sound to be heard; and after removing the cleared super the escape-board was nearly always found strewn with slivers, and the joints were rounded by the gnawings of the confined bees. Mr. Aikin's experience agreed with this, and he said that what was needed was a large window to show the bees the way. I waited confidently for some one to provide the escape which should eliminate these supposed troubles.

In using escapes during 1893 the crackling was still present, the joints of hives and supers were being rounded, and as the supers were raised the bees sprang into the open space as if to get fresh air, but very few took wing. These actions indicated that a way of departure was desired, though they were not in haste to depart by it. Again, where hives had too small entrances, this crackling sound had been noticed to proceed from the neighborhood of crevices between supers and covers. When the entrances were enlarged, the crackling all ceased. Entrances which were large enough for colonies while weak, were too small after the colony became stronger. Bees had been observed trying to enlarge, not alone the usual entrance, but also every visible crevice about their hive. Although the enlargement of all the crevices is not in accordance with reason, we find that the nature of bees impels them to the removal of a

mountain with as much vigor as in sweeping away the loose dirt which a mole may have thrown upon their doorsill.

Several escapes and supers were prepared so that it could be seen how the bees performed. It was noticed that the first one or two hundred bees proceeded almost directly to the joints, and began pulling at the corners without much search for the escape-exit. These bees seem to bear about the same relation to the general throng as the sentinels in a colony or the leaders in a swarm. A single-exit Porter escape had the rear part of the channel removed, and then it was adjusted on the top of the escape-board with its mouth projecting through the side of the super, to allow light to shine through the escape and be distributed over the surface of the board. Loud crackling ceased entirely. Still, very few bees came out through the escape during the first hour. A Porter escape was thus arranged for the outside air and light, and then another by the side of it, in the usual way, leading down into the brood-nest, and four-fifths of the bees went out of the super by the inside rather than by the outside route. Why should they *not* choose the shortest way?

Another modification of the Porter escape was devised, containing a long flexible spring for a bee to walk upon, and which should sag and open the exit, allowing the bee to escape without effort. In testing it by the side of the usual exit, 95 to 98 out of 100 bees passed out of the exit, which required no exertion. One hundred bees were placed in a box with the exits side by side. When the bees were quietly caged they remained unalarmed for considerable time. When the exits were closed until they became uneasy, the difference in operation of the exits was much nearer alike, owing to one bee first spreading the springs and then several others rushing and following closely after. It requires a fresh quota of bees at each trial, because the natural disposition of the bees is the subject of test.

An easy exit would assist slight inclinations, and a single-bee exit is inadequate for practical use, as an hour or so after the escape-board is put on the hive, the festoons begin to break up; and I have seen bees crowd through a single-exit Porter escape, pressing the springs apart the full width of the channel. The wider the springs are opened, the more power is required. This fact suggested the change to laterally swinging gates, which might be maintained open full width as easily as part way, after the manner of the "garden gate," which swings by its own weight upon a narrow hinge at the top and a hinge of wider sweep for the bottom. Then it was noticed that robbers, in trying to creep into perpendicular crevices, approached from the sides, showing that the natural mode was to place their heads under and lift, instead of pushing against the points of the shoulders, as would be necessary in the operation of later-

al gates and springs. Therefore the Poulder was the correct form of gate. The force of the Poulder invention was destroyed by the advice to "let the points of the pins rest upon the jumping-off board," when they should have remained up far enough to nearly admit a bee. This gate, constructed of heavy tin and, properly adjusted, clears the supers right along; but with the front edge of the heavy gate resting upon the "jumping-off" board, it is of no use whatever. I made it first of tin, using it so one season; then platinum, and finally of wire, to admit a better flow of light. I believe the "partially open" idea was first suggested and applied to escapes by the Porters.

In my opinion, the first bees to leave the combs and come down on the escape-board are not dispositioned to leave the apartment until the whole "crowd" goes. They search or a route of escape, and, finding none which *suits* them, they attempt to prepare one by pulling away at the yielding points. If a satisfactory exit is there, they recognize the escape-board as a strange piece of furniture, and spend the waiting-hour examining each other for detection of a possible stranger. About the time the bees were expected to be moving through the gate of the Stamped escape, the space between the gate and screened window was discovered to be packed full of bees, there being several upon the upper and brood-nest side of the gate, clawing and pulling for dear life to gain admittance from the hive into the super. Certainly it would take a muscular bee to lift this gate while several bees were trying, with weight and strength, to hold it down, and the roof of the channel at their backs. At first they were thought to be bees from the brood-chamber coming up, and it looked like an insurmountable obstacle. Then it was wondered why they were so anxious, having no knowledge of what would be found on getting through the gate. Finally it was discovered that these were bees of the super, which had inadvertently gone under the gates and then decided that they must return or be forever separated from their sisters. When the general tumult or stampede began, the tide turned the other direction.

As evidence of the stampeding disposition of bees, I will relate: A strong colony was prepared for queen-rearing by removing the upper story and setting the same on the old stand, while the lower story containing the brood and queen was carried to a distant stand. In the morning it was intended to add more bees and give eggs for cell-building to the queenless half. This division was made near dusk, and about two hours later I heard a loud roaring in the apiary. On going out I found the bees of this queenless half pouring out and marching off across the grass and entering a strange hive about three feet away. Both hives were black with fanning bees, and the trail of march was at least fifteen inches wide. This was he

greatest demonstration over the loss of a queen that I ever saw. Yet was it not the exact result produced by the adjusting of an escape-board between the two stories? And what of the efficacy of the one-bee-at-a-time exit?

Mrs. Atchley wrote some time ago, that, while some colonies would mourn greatly over the loss of the queen, there were others which mourn scarcely any. There is as much difference in colonies in leaving the supers or going through escapes, and it is advantageous to assist those which are slow to mourn and move, by the application of carbolized cloths. That form of escape which clears the supers in the shortest length of time is not correspondingly the most desirable for use. For example, a large amount of smoke will soon drive bees from one super into another, but a lesser amount of smoke, and slower traveling, may leave them in better condition to resume work in the new super. An escape does not smoke; but a one-bee exit may waste their thronging tendency, or the air of the super may become so heated as to injure the health of the bees. Such fear of suffocation clears a super more thoroughly, because, in going out by the natural impulse, there is a number of bees which linger, as guards of the combs of honey. The getting of the *main force* of bees below *contentedly at work* in the new super is the practical consideration.

Florence, Cal., Dec. 1.

[I have read over the foregoing with more than ordinary interest. While Mr. Dayton has written other good articles on this subject, this one, it seems to me, is the most comprehensive from his pen so far, and comes the nearest to hitting the real secret upon which bee escapes do their work.

Yes, I will admit that the Stampede (in fact, I assumed as much in my answer on page 870) might have been produced without the knowledge of either of the other two inventions.

Although Mr. Dayton seems to have covered the ground very fully, I wish we might have corroborative testimony from others.—Ed.]

COVERS FOR HIVES.

THE HIGGINSVILLE AND GABLE DISCUSSED

By Dr. C. C. Miller.

Early in November we had a fall of snow, and, unfortunately, my hives were not yet in the cellar, so each one had a covering of snow some three inches thick. In a day or so there was a sort of basin of snow on each hive. On the middle part of the hive-cover the snow was entirely gone, while at the outer edge there remained a border of snow three inches deep. There was some comfort in the thought that the colonies were strong enough so that the heat from them melted the snow. Of course, the heat would be greatest at the middle part, directly over the cluster, while at the outer part there was not enough heat to melt the snow.

But there was discomfort in the thought that whatever heat came up to melt the snow was heat taken from the bees, and there was no resisting the thought that they would have been better off if that heat had been retained.

While the single-board flat cover has so many advantages that I hardly think I shall ever be willing to go back to the covers I formerly had, still there is no denying the real disadvantages in the flat cover. First, it is cold; second, it warps and twists so that it doesn't make a close fit. Before I had flat covers, if a hive stood out with snow over it, that snow melted away very little faster than the snow on the ground. A quilt or cushion was over the frames, then a space of from one to six inches between that and the cover, so that practically there was a non-conductor over the bees.

Admitting that, when snow is on the hives, it is to some extent bad to have a single board over the bees, the question arises whether that matters particularly when no snow is on them, as when in the cellar or under a shed, or even when a board is laid over the cover. Is it any worse to have a single board on top than at the sides and ends of the hive?

When my hives are in the cellar I have sometimes looked in at the entrance, holding a light there, and I could plainly see water standing in drops on the back wall of the hive. If water is on the back wall, I see no reason why it will not at the same time be on all four walls and also on the cover. Is it any worse for it to be on the cover than on the walls? I can hardly see that water standing on the cover is any worse than water standing on the walls. But when it accumulates to such an extent that it no longer will stand there, then there is a decided difference. The water on the walls trickles down to the bottom, while the water on the cover falls in large drops on the combs and on the cluster o .

So it rather looks as if we wanted matters so arranged that no moisture will condense over the bees, whether in cellar or out. Outdoors, with the right covering to favor it, a thick coating of frost will accumulate on the cover, thicker than on the side walls; for the tendency of the heated moisture is to rise; then when the weather moderates sufficiently, down comes a deluge on the combs and bees.

Taking in view what I have said, C. F. Muth seems quite reasonable in his contention that the only protection he wants for his bees in winter is on top. And isn't it just possible that the great advantage claimed in some cases for absorbent cushions over the bees lay not in the fact that the materials used were good absorbents, but that they were poor conductors of heat, hence materials that would not become cold enough for moisture to condense upon?

The other trouble with the flat cover is a bad one for both winter and summer. Some seem to think that, with a cleat on each end of the

cover, it will stay straight. But a board can twist, no matter if an iron cleat be immovably fixed on each end, and with any ordinary cleat there is likely to be some turning up at the sides. The Higginsville cover is an improvement in two directions. It is not likely to twist, for the two pieces will seldom if ever agree to twist together. The edges are not likely to curl up, for the cover is thinned down at its edges, and, being thinner, is more easily held in place.

But the Higginsville cover still has the objection of the single board so far as warmth is concerned. And now I have a confession to make. Until after I had written the preceding paragraph I had not read carefully enough the description of the "ventilated gable" cover on page 911 to notice that a flat board fitted directly down upon the hive. Indeed, I had not noticed that there was any thing about the cover that was especially different from covers already in use. After reading carefully the description, and after looking at the picture for some time, and thinking it over closely, I confess it's a good cover—in some respects, better than any thing else I've ever seen.

But the advantages of the Higginsville cover I'm hardly willing to give up. With that I can carry my hives into the cellar and pile them up four or five high. How could I do that with the gable cover? That one item condemns the gable cover for my use. For those who leave hives on the summer stand, there may not be the same objection. But a large number—a number that I think is on the increase—winter in cellar, and the question arises whether you can not combine the advantages of the two covers.

For perhaps more than a year—at least ever since I first saw the Higginsville cover—I've had in mind a cover much like the Higginsville, only having a thin board or boards nailed on the under side, leaving a half-inch space between the upper and under cover. I suspect that that half inch space would be about as good as a space of several inches. That would leave a cover that would take little room (you see, the room taken up by the gable cover would be decidedly objectionable in the cellar, even if it could be piled), and it would pile up as easily as any flat cover.

While I don't feel sure about it, I don't think I want any ventilating space between the two parts of the cover. In mild climates I should think it a good thing, and possibly it may be best anywhere; but it seems to me we don't want any thing but a dead-air space so as to keep it warmer. But it would be a mere trifle to put in a strip on each side to close the ventilation.

Another item I don't like, and after using it I like it less; viz., the cleat projecting below the under surface of the cover. It hinders rapid placing of the covers on the hives; and if cleats

are put on the ends of hives for handles, the covers must be made about two inches longer. I agree with H. R. Boardman, that cleats for handles are indispensable, and the cover must conform. It will be an easy matter to nail the thin board under the Higginsville cover, leaving a perfectly flat surface to fit on the hive. That done, and the space made a "dead-air" space, I think my ideal of a cover would be reached.

I don't think I shall ever again get a new cover made of a single board, nor one made of two boards with the joint closed by a piece of tin folded and slid into saw-kerfs. Some of these days, if I live, I shall want some new covers. I want them to fit down close, so there shall be no crack between cover and hive, or between cover and super, and I think either of the covers on page 911 will fill the bill in that direction. I want the advantage of the air-space, and I want at the same time the advantage of the flat cover. What do you think of my ideal?

Marengo, Ill.

[Regarding C. F. Muth's contention that the only protection he wants for his bees on top, I might say he may be all right for his locality; but it would be hardly enough in our climate, or where it is colder, as in Marengo and in many parts of Canada. I remember one time when we were going to the Bee-keepers' Congress in New Orleans (February, 1885) we left Medina in the morning when the thermometer registered 10° below zero, and had been at that point for about a week. Snow was on the ground to a considerable depth. Well, in about four hours the train brought us to Cincinnati. There was very little snow there, and what there was to be seen was melting; and I was told that the thermometer had hardly been down to freezing for a week. Now, this is a difference in temperature that is often found between the northern part of even one State and the southern; so it will be apparent, I think, that top protection would not be enough for the northern part of the State, while it might answer for the southern part very well.]

Our ventilating cover was made for hot climates, and to take the place of the 20-lb. stone and shade-board in other climates. The two open side spaces can easily be closed up with two narrow strips, and we shall then have, practically, a cover with a dead-air space.

You id ¹ of making the Higginsville cover double is good, and it is very possible that we ought to hold ourselves in position to furnish the trade such a style whenever they call for it. But I would insist that the lower cover-boards be let into a groove, for I would never trust nails alone to hold the boards. And that brings us to the question as to whether we shall let the cleats project down on the under side. A good deal depends upon what sort of cover one is used to. Here at the Home of the Honey-bees we have used the flat covers with a cleat projecting over at each end, and would not have them any other way. You will remember that the sides of the hives are $\frac{3}{4}$ thick at the top. The ends at the top, by reason of the rabbets, are only $\frac{3}{8}$. The cleats of the cover project down and protect this $\frac{3}{8}$ —that is, they prevent the water from beating or seeping in. Another thing, the down-projecting cleats permit of grooves that will hold the boards securely. To make the covers entirely flat on the under side makes the groove a rabbet, and then nails have to do the whole work of holding the boards.

Yes, sir; there is a good deal in getting used to a thing. If you can get used to the cleats projecting downward, and can be convinced that they make a better and stronger cover, then why not get used to an arrangement that may appear to be a little awkward at first?

Yes, I know you prefer cleats nailed on to the hives in lieu of handholes; but here again is the old saw, "getting used to a thing." The handholes for the last year are not the small scrumpy things that they once were. They are made wider and deeper; and I do not know but they can be made wider yet, so as to give the same handhole grip, practically, that you obtain from the hive-cleat, without its awkwardness.—ED.]

HIVE-COVERS.

THE TORONTO CONVENTION AND HONEY-BEE CONCERT.

By F. A. Gemmill.

There are two items of particular interest to me in GLEANINGS for Dec. 1 that I desire to call attention to. As, however, I do not wish to write a long article on either one of them, I will endeavor to be brief and give them in the order as per the above heading. First of all is the illustrated gable ventilated hive-cover and your comments thereon. I fully agree with you respecting the "20-pounder," as I have used it, as well as the shade-board. I do not, however, use a quilt in summer when producing comb honey, and seldom for any purpose except when feeding small quantities of thin syrup or honey for stimulative purposes between fruit-bloom and clover, and for winter covering under the packing. The latter plan I am to some extent discarding, finding them not an actual necessity when the other conditions are satisfactory; and as for enamel cloths, I never used even a single one for experiment. My flat wooden covers all have the requisite bee-space under them; consequently, for the reasons you advance, the quilts are not at all necessary, whether or not producing comb or extracted honey. I have, therefore, concluded to give the new covers a trial, in the hope that some labor and time may be saved, without altogether sacrificing the needed protection from the hot sun, etc.

THE TORONTO CONVENTION.

Like Mr. McKnight, I am also glad that Toronto has been chosen as the next place of meeting of the International convention; and as that gentleman has given your readers his views so well, it is needless for me to attempt to add any thing more in this direction. I trust, notwithstanding this, that Americans or Canadians (Yankees or Canucks), will be carried away with the idea that no other convention of importance is to be held in Canada during the coming year of 1895, as the Ontario Bee-keepers' Association is to meet in my city (Stratford), Jan. 22, 23, 24; and although we have had some excellent meetings of this asso-

ciation in Canada, we expect the coming one to eclipse all former ones. If it does not do so it will be a disappointment to those who have the matter in hand.

For the benefit of those who desire to attend, I may say that our railway facilities are unsurpassed by any other point in Ontario. Numerous trains arrive daily from the east, west, north, and south; and for a city of its size the hotel accommodation can not be excelled. The court-house, for holding the regular sessions, is not only commodious but central as well. Having stated this much, I want specially to bring before the notice of the readers of GLEANINGS that a new departure is going to be attempted, which, I am quite satisfied, will be an improvement; and as it may possibly be looked upon by some as one of my hobbies, I am the more eager that it be successfully carried out on this occasion, as several attempts at my request, in other places, did not meet my anticipations. As a natural consequence, I am in hearty coöperation with a few others in endeavoring to see my scheme materialize. It is, in fact, nothing short of a public entertainment to be held on one of the evenings, while the association is convened in this city, for the special benefit of the public, so that they may be educated or instructed in regard to the value of honey as a food, accompanied with a magic-lantern exposé, and lecture on the anatomy of the honey-bee, illustrating at the same time the manner in which the insects fertilize the flowers, secrete wax, build comb, gather and ripen honey, etc., interspersed with both vocal and instrumental music suitable for such an occasion.

We Canadians are not going to be behind the times; and as Dr. Miller on one occasion in *Stray Straws* referred to "a man up in Canada" as advocating a honey-bee concert, we want him up here to see how we do things, and then he will know all about it, and can do likewise; but then, he is not going to be allowed to do or say any thing except "I don't know nothing," or something like that. But in case he might be offended, I'll show him *up* in my apiary, as I have his name painted on a beehive, in good company with some prominent German, French, American, and Canadian apiarists, who, I guess, will "kinder" smooth him over, and he will then feel at home, even if among good "basswood" honey-producers. Of course, it is generally conceded by Canadians that, in the matter of basswood hams and wooden nutmegs, the Americans, or, if you please, the citizens of the United States, take the cake.

Stratford, Ont., Dec. 11.

[Your scheme for the next Toronto convention is an excellent one, and we shall be glad to boost and boom it in GLEANINGS, in every way possible. Our conventions might do us vastly more good if we would make them more a

medium for conveying knowledge to the general public of how the "bees make honey," and that it can be produced by the car and train load, and every drop of it be pure honey. The magic-lantern exhibition would help wonderfully. Then while we are about it, let us not forget to get the newspapers all over the land to give full reports. Without any thought of flattery, I believe I am safe in saying the bee-keepers of Ontario will do more along these lines than those in any one State of our Union.—Ed.]

ONE POINT IN WHICH THE FLAT COVER IS SUPERIOR TO THE HIGGINSVILLE.

Allow me to suggest one point in which the flat cover is superior to the *Higginsville*. When I first saw the flat cover with grooved cleats I took a strong fancy to it because it was so plain, simple, and perfectly *reversible*. For 15 years I have had experience (generally unpleasant) with an almost endless variety of covers. I have yet to see one that will not warp. With the flat cover to remedy this condition, you have simply to turn it over. Please answer me one question: Is not the *Higginsville* a cheaper cover?
C. A. MONTAGUE.

Sang Run, Md., Dec. 15.

[Nearly all our flat covers in use have been reversed at some time, as the propolis-marks show, but the reversing was accidental rather than for a purpose; but a single-board cover, if it has any tendency to warp at all, warps, or tries to, so far as the cleats will permit, all one way. Much will depend upon how far the board was from the heart of the tree. The *Higginsville* model, besides the cleats and gable strip, is made up of *two* boards; and theory as well as practice shows that the warping tendency of the one will correct that of the other. But another important point is, that the outside edges of the boards are brought to a thinner edge, and this weakens the curving tendency so that the cleats will be able to hold them.]

No, the *Higginsville* cover is not cheaper for the eight-frame hive. It would be for the twelve-frame size, because wide boards for such a size would be expensive.—Ed.]

RAMBLE 123.

IN THE SALINAS VALLEY.

By *Rambler*.

We made our quiet entry into the town of Paso Robles on the 19th of July. They never have any hot weather in Paso Robles; but the day we entered, and the next day, which we passed there to give our lame pony a rest, and to wait for our mail, the thermometer registered 96° in the shade. We perspired a little, though we were camped under one of the oaks near the great hotel. The hot sulphur springs make the town noted; and many who are afflicted with disease come here in quest of health. Three miles from town is the Santa Ysabel sulphur lake, where open-air bathing, mud baths, and boating, are indulged in. These attractions, and the beautiful drives around the country, bring not only invalids but tourists to town, and it has on the whole quite a prosperous air.

From Paso Robles to San Miguel (St. Michael) would ordinarily be but a two hours' drive; but with our lame pony we were half a day getting there; and while our ponies were eating their allowance I strolled over to the Old Mission, which is located here, and photographed it from various points. Much of it is in ruins. A kind padre, however, has it in charge, and is willing to receive the little stipend the visitor is willing to offer. In fact, there is a notice on the door, saying that a two-bit piece dropped into the slot would be a welcome visitor. There was not a very prosperous air around San Miguel. The country was parched to such a degree of dryness that no crops had been secured; and the few people loitering around the streets had a discouraged aspect. I learned, from what I considered a reliable source, that there were two extensive bee-keepers near San Miguel. After diligent inquiries at the stores, the livery stable, and of our friend the blacksmith, I could learn nothing of Messrs. Swenson or Littlejohn, and concluded they were either a myth or had dried up with the rest of the country. I did learn there was a Ward bee-ranch out a few miles on the road we were to travel. Our afternoon journey carried us past it, and we did indeed find the Ward apiary, dried up and partly blown away, or, at least, it was the nearest approach to a deserted bee-ranch that we had seen for many days. Mr. Wilder and I came to the conclusion that our informant must have been in error, and that there were no bee-keepers in that dry country, any way. For over fifty miles we saw not a flower for a bee to work upon, and not a bee to work upon a flower.

Our drive for a couple of days was monotonous enough, and our camps windy and dusty. Saturday evening, July 21, we were glad to encamp on clean grass-covered ground, upon the banks of the San Antonio Creek. We camped, and rested over Sunday, and scraped the dust from our bodies in the crystal waters. The weather was so fine, and trees so protective, we dispensed with the tent and slept in the open air. Monday morning found us much refreshed for the continuation of our journey. Reina's lameness began to mend a little, so that we could indulge in a trot occasionally. On the creek-bottom we found a few plants which looked like what we used to call, back east, "queen of the meadow," and there we found a few bees at work.

Just as we entered the road, for the pursuance of our journey, a lone horseman came along, and, like all sociable travelers, we fell into conversation, and found that our horseman was an ex-cowboy from Nevada; had just come from a prospecting-tour on the Mojave Desert; had earned some money recently, in the capacity of a vaquero, but had "blown it in," as he termed it, in Bakersfield; was now on his way to Monterey to secure a job on the new railroad; was about dead broke, and would like

to travel along with us. We, of course, had no objections, and the ex-vaquero became an attachment to our outfit, or a sort of tail to our



OUR VAQUERO OUTRIDER.

kite. His horse was not a fiery steed, but he was honest; his ears seemed to have been broken down some time at the base, and had the habit of flopping up and down like a saturated dish-cloth. Our vaquero, too, held his bridle hand high, and allowed the motion of his hand to keep time with the horse's ears. On the whole, our vaquero was a young man of many accomplishments; and around our campfire evenings he gave us much information in relation to life on the plains.

Near Jolon (*Jo-lone*) we crossed the line into Monterey Co., and now, after several days' drive over a dry and dusty country, we enter the mountains and cross over into the Salinas River country. The change is agreeable; and Mr. Wilder, finding signs of deer, rode for several miles with rifle in hand, ready for execution upon whatever animal might appear.



WILDER SCENTS DEER; A GAME CALF.

At the foot of the grade, just as we were about to strike into a more level country, a deer arose and looked at us from under the drooping foliage of an oak-tree. Wilder fired, of course, and the deer gave a sort of scrooch, as though hit, and then took an easy trot and disappeared in

the bushes. This was the first wild deer I had ever beheld. From Mr. Wilder's stories about deer, I had my imagination all wrought up, expecting that, when I saw a deer, it would go bounding away o'er the hills, with head, tail, and horns erect—an imposing sight; but this deer just stood and looked at us like an old cow, or until it was shot at, then moved off. Why, I have seen a two-months-old calf show much more of a gamy spirit than that. Just try to lead a stall-fed calf of the above age out to the pasture-lot, with a long rope, and if you don't find gamy qualities that will throw this lone deer into the shade, then I am no judge of animal nature.

Hearing the firing, our vaquero, who was in the rear, came dashing ahead, and rendered us good service in scouring the brush; in fact, all three of us scoured, but in vain. No deer could be found. Bro. Wilder said that a deer would sometimes carry a bullet a long distance, even if shot in a vital spot. I told him I had a fair view of the deer, and I was sure *we* hit it in the shoulder. When I said *we*, Mr. Wilder turned right off into the bushes again, and went to scouring; and again we all scoured. We didn't wish to lose that deer that *we* were sure *we* had hit. But we had to pursue our journey again, and Wilder and I didn't get over *our* bad shot at that deer for three whole days. We got out of the deer country, and could not mend matters by shooting another.

We saw here, at the juncture of the hills with the plains, a little apiary of half a dozen hives. They were set up against a fence—box hives—in squalid misery, and we thought it not worth while to interview the owner. It demonstrated, however, that there was a little portion of the country that could support bees.

We now entered a strip of country, the reputation of which we had heard of for many miles. Even before we left our southland we learned that we should find the windiest place we ever experienced when we entered the Salinas Valley. The contour of the mountain-ranges, and the valley's pointing toward the Mojave Desert, cause the wind-currents from the ocean to follow the strong tendency to fill a vacuum on the desert, caused by so much heated air rapidly rising. The air-currents reach their greatest force near King City, in the upper portion of the Salinas Valley. We found the windy stories verified; and for eight miles we faced wind, dust, and gravel stones—yes, sir! small gravel stones were hurled through the air, and were any thing but pleasant to strike the eye. Our vaquero, riding doubled up on his horse, was out of sight half of the time in the clouds of whirling dust, and even our ponies we beheld as through a mist much of the time. Teams approaching us were almost upon us before being discernible; our eyes were full of dust, and we shed tears of mud. It was a drying wind, too, and several times we all drew up

on the lee and shady side of a telegraph-pole and drank from our canteen.

We entered the country of large ranches, few and far-between houses, and few camping-places. However, we sent our vaquero ahead when we approached the next ranch, and secured permission to camp. Our faces, when we got where we could look at them, were nicely frescoed with dust; ears full, more tears of mud. On the whole it was an experience to be remembered. The Salinas River is here bottom side up as usual, and windmill water is used for the herds of stock. Every thing is usually free to the traveler on these large ranches; but they have a sort of deserted appearance this dry year—not so many men employed, and the cattle were being driven off to better pasturage.

The next day, as we pursued our journey we passed through a herd of 500 cattle in search of greener fields. All the way to Soledad we traversed a wind-swept road. It is hard to find, in many portions of California, people who will admit that their particular locality has any disagreeable features; but people here frankly admit that they have a very windy country. We cross the river at Soledad, and here it gets right side up, and shows a fine stream of water. From Soledad to Gonsales (Goan-saw-lais) the aspect of the country changes; the valley widens out, and large grain-ranches are the rule, to the exclusion of fruit. There is enough moisture here for the raising of a fair crop of grain, even in a dry year; and the warehouses were filled with sacks of grain, and piles of sacks could be seen in the fields in every direction. The people had a more hopeful expression upon their faces, and it was pleasant to see the change from the discouraged people we had seen during the past hundred miles. Our vaquero hustled for a job at every grain-ranch; and as he rode into a field where a steam-thrasher was at work he bade us good-by. The flopping ears of his steed flopped us a last farewell, and we entered the town of Salinas, and sojourned for a couple of days.

PINEAPPLES.

HOW USED; THEIR BENEFICIAL EFFECTS, ETC.

By O. O. Poppleton.

Friend Root:—Some time ago I promised to tell your readers something about the use of pineapples. They are a purely tropical fruit—that is, they can not stand any frost at all, without serious injury. For that reason their culture has never been attempted in this country on a large scale until within a few years, or since extreme South Florida has begun to be settled; and even here their culture is confined to such localities as are practically frost-proof by reason of water protection, such as we have

here on the St. Lucie River and other places, or high ground, as on the Indian River, near us. By far the largest part of all pineapples raised in Florida come from the lower Indian River country, within 25 miles from where I am now writing—upward of 60,000 crates, or about 400 carloads, having been shipped this season from the East Coast of Florida.

An article descriptive of pineapple culture might be interesting to many of your readers; but it would be interesting only, and not of practical value.

At first we were not strongly impressed with the value of this fruit for common every-day use in the family; but it seems to be a fruit that grows in estimation. We are now inclined to rank it as very nearly if not quite equal to the orange as a standard all-round fruit.

There are a number of ways of using the fruit. Probably the best way, as well as the healthiest, is simply to select a well-ripened apple; peel; dig out eyes with a sharp-pointed knife, and eat it fresh out of hand, the same as we do apples. Some prefer to use salt on them, the same as we do on muskmelons.

Our favorite way is to serve as sauce at the table, exactly as we would strawberries. They make excellent pies when made exactly the same as are green-apple pies, which they resemble some in flavor, but are better. Good marmalade is also made of them. There are other ways of serving the fruit, but these are our ways. In slicing pines for use as sauce, the best way is, after they are peeled, to slice them lengthwise to the core, but not through it, about $\frac{1}{2}$ inch apart; then cut similar slices around the fruit. Then cutting off the sides of the fruit leaves it all in very small pieces with little labor.

Some two or three years ago we saw an item in a paper, calling attention to the value of fresh pineapple juice in its action on tough meats. We Floridians have a corner on tough beef, so we tested the statement. Wife sprinkled a couple of tablespoonfuls of fresh juice on about 1 lb. of very tough steak, let it stand a few minutes, then cooked. The result was marvelous to us. The steak was tender and sweet, and some of it was actually cut into meal. We are told that pineapple juice is the active agent in the manufacture of beef meal, and our own experiment shows that it could be. We are also told that the juice is the best known agent for the cure of croup and diphtheria, its action on the diseased membranes being the same as on dead flesh. Fortunately, we here in Florida can not test that statement.

Of course, it is easy to test the action of any thing on articles of food before either is taken into the stomach, but not so easy afterward. Theory says the action would be somewhat alike in both cases, and experience seems to sustain that theory. We ourselves have never

tested the matter thoroughly enough to know what are the real facts; but we think we feel better, generally, when using the fruit freely. Many others think the same way.

The pastor of our church here tells me that he is troubled very much with dyspepsia, causing severe constipation. He has never yet found any thing, either medicines or food, that relieves his trouble as thoroughly as does the eating of a pineapple; and it leaves no bad effect whatever. His experience is almost identical with your own, as given in June 1st GLEANINGS, only his experience covers a year or more, instead of only a few times, as yours did.

One of our neighbors manufactures in large quantities a medicine which he calls "Pineapple Digestor." The process is a secret; but it contains considerable alcohol, and is, therefore, very different from fresh juice. I have never seen or tested the medicine. I don't believe much in alcoholic preparations anyhow; but I hear it well spoken of by some, while others think differently, as is always the case with all medicines.

Unquestionably, pineapples or their juice produces much better effect when used perfectly fresh, without boiling, cooking, fermenting, or in connection with any thing else like salt or sugar. Every departure from nature's simplest way of using the fruit injures its good effect. On the other hand, no other kind of fruit is as injurious if eaten after it has commenced to decay ever so slightly. All portions of a pineapple need to be thoroughly cut out that show the least signs of decay. I can not emphasize this point too strongly.

We have but few unsalable pineapples to work up into juice, the proportion of culls and poor fruit being much less than with oranges. Of course, there is always some fruit not as salable as the rest, and some juice could be obtained from these. It should be used fresh, unfermented, unboiled, and unsweetened; and I do not know of any method of putting such juice on the market at a low price. I know a way of preserving the juice all right, but it is more expensive than it ought to be, because it has to be bottled the same as beer is, and shipped in bottles from here. I am testing the method in a limited way this fall. If successful I will experiment still more largely next summer, with a possible view of putting fresh juice on the market; but I am afraid its having to be bottled will defeat its general use. A neighbor within a few miles of here is putting it up largely in barrels; but he preserves it by the use of large quantities of sugar, which materially injures its value for the use you wish it for. I will try to keep you posted on my success or failure in keeping it fresh, and unmixed with sugar or any thing else.

Potsdam, Fla.

NOTES OF BICYCLE TRAVEL.

AT E. FRANCE'S.

By E. R. Root.

Saturday night found me pushing my wheel up through the streets of Platteville, after dark. Not desiring to intrude myself unexpectedly on the family of E. France, I made for the best hotel. The next morning, Sunday, I inquired what church of the place the France family were in the habit of attending. I was told that it was the Methodist, and that usually one or more of them were there.

In the meantime I brushed myself up, blacked my shoes, and tried to make myself half way civilized in appearance, even if rigged in the garb of a cyclist, with clothes more or less soiled by the dust of the road and perspiration of the body.

At the church I was surprised to meet as ushers the hotel clerk and proprietor. They gave me a seat, and told me that they would inform me if the France people came in; but they did not come, as I afterward learned, owing to sickness in the family. But I had the pleasure of listening to an excellent sermon.

Well, after Sabbath-school I went to the hotel and wheeled thence to the France home, and was met at the door by the senior France. On explaining my identity he seemed a little surprised, and wanted to know why I did not come on my first arrival. He rather thought I ought to be "whipped" for going to a hotel; but I told him I thought it was hardly the thing for me to go unexpectedly into the homes of bee-keepers at all hours of the day and night, for, necessarily, a wheelman can not make any regular appointments.

As the senior France was not feeling very well, his son, N. E., and I took a stroll over the place. Before I go further, let me introduce you to him.

The junior France, now aged 37 years, takes care of the out-yards and manages the help generally, while his father, owing to his age (70), confines himself to the work of the home yard. Like him, the junior France is a man of intelligence and forethought, and, as nearly as I could judge, he is full of business and push. During the fall and winter, when he can not carry on active operations in the apiary and fruit-farm, he teaches school; and thus, I imagine, he finds his time pretty well taken up during nearly all of the year. He has taught thus for ten years, and this is evidence enough that his services are appreciated. He was three years president of the Southwestern Bee-keepers' Association—one that is really more active in its general work than the State Association. He was also president one year of the Platteville Horticultural Society, and has served in various capacities as secretary of these and other organizations. Like another prominent

bee-keeper (H. R. Boardman), he is a practical taxidermist, having had 18 years' experience. I am sorry that I can not tell you more about him; but he was so modest that I had to pick up what I could. But I can assure you that, like his father, he is one of the bright intelligent bee-keepers of the land; but as he has left the apicultural writings wholly to his father, less has been known of him. It is no disparagement to the senior France to say that the junior partner is now the active bee-keeper of the firm of E. France & Son.

You will remember that, on this same trip, I found that M. H. Hunt and R. L. Taylor were making a great success in growing fruit; but I doubt whether there are any bee-keepers who carry on fruit-growing any more extensively

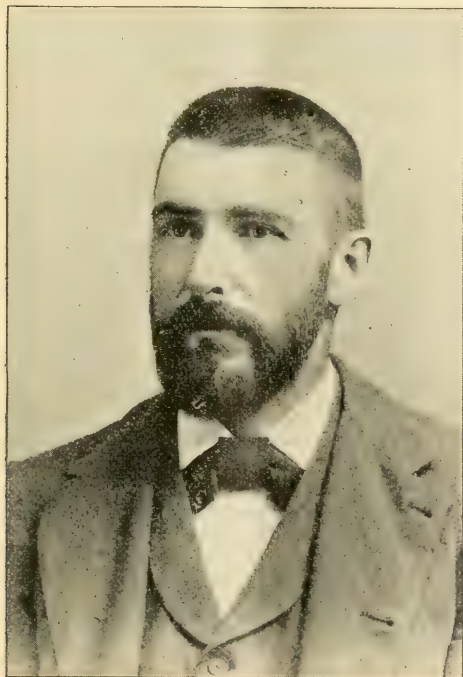
and a little further on still another. At no one point was there the appearance of a very large establishment; but an hour's walk shows that they have an immense plant—one that turns out about a carload of powder every day. I believe it is the second largest in the United States.

As I was going along one of the walks leading from one mill to another, Mr. France told me that all the employes had to wear shoes furnished by the company—that it would never do to have any steel nails in the soles as in ordinary shoes. Indeed, the rails forming the track of the small railway running from one mill to another (the car drawn by a mule) is made of copper. It is not safe to have steel or iron come in contact with itself. As I approached the door of one mill (every thing was shut down, of course) a kind of nervous fear took possession of me. I remembered that I had steel nails in my shoes, and the thought came to me, "What, what if I should blow up one of the mills with those steel nails! and how would it look to our readers to hear that I, although in good company, had been blown to atoms here on *Sunday*?" When Mr. France showed me where this mill and the other had blown up, and the terrible destruction that had followed in its wake—of the great timbers that had been reduced to kindling-wood, I felt a strong desire to get away.

Notwithstanding the great danger to the employes, and the fact that working over the powder is very destructive to health, the men keep at the business until they can do nothing else, and death soon overtakes them—not necessarily a violent one, but of slow degrees; and as soon as one is gone there are plenty of applicants for the position.

The following Monday morning I accompanied E. France and son out into the home yard, and there we talked over their methods of management. As Mr. France has himself described this in the article on page 932 so fully, I shall not need to repeat it here.

I had a great curiosity to see those great shot-tower hives. Indeed, they must have been of the appearance of shot-towers when they were made up of two stories, for the frames themselves, of the standing sort, and spaced with nails, are about 12 x 20 inches, the long way up, and about 9 of them made a brood-nest, and formerly they had an upper story on top of this, of the same capacity. You will not be surprised when I tell you that such colonies used to yield a barrel of honey; but latterly the shot-towers have all been reduced to one story; and while Mr. N. E. France still prefers them to anything else, the senior France likes the eight-frame Langstroth better, worked in two and three stories. But whether the shot-tower or Langstroth, the hives are all of the quadruple type, to save space and to conserve heat in winter, and to render it impossible for do-



N. E. FRANCE.

than E. France & Son. They not only have an extensive fruit-ranch, but they grow the very finest and nicest varieties. Every thing gave evidence of having been systematized so that the labor of the hands was reduced to a minimum, and the headwork seemed to come from both father and son, so far as I could judge, in about equal proportions.

After sampling the various fruits, Mr. France asked me if I would not like to run over to the powder-mill, that adjoined on another lot. As I expected to go away during the next forenoon I told him I would. The mills are situated in a deep valley, or gorge; and as one enters the place he sees here a building and there another,

mestic animals or an ordinary wind from turning them over. They are what some people call "tenement" hives. Imagine a large double-walled hive divided up into four squares by $\frac{3}{4}$ boards passing at right angles in the center. The outer walls are double and packed. Thus it will be seen that it is necessary to have only two outside walls, of double thickness, for each colony; and herein, I suppose, is the economy. But for some reason or other the quadruple or tenement hives are not generally popular among bee-keepers, owing, I think, largely to their non-portability.*

The Franceses had discarded the old mouth smokers, such as they formerly used, and were using a modified type of the Bingham of their own construction. They had heard of the Crane, but had never seen it. When the senior France commenced to fill his smoker he said he had found that ordinary straw, packed tightly with a little tobacco, was about as good a fuel as he wanted. Indeed, the straw alone makes an excellent fuel. It makes a very dense white smoke—one that is pungent and powerful; and while we were looking over the bees, the smoker did not require replenishing, I think, any oftener than with planer-shavings or even blocks of wood. Of course, if the straw is not packed in tightly it will burn quickly.

The Franceses are using principally the Carniolans. They prefer them for their own use to any others. The home yard was largely of these bees, and other yards were being Carniolanized, if I may coin the expression, as rapidly as possible.

Our Platteville bee-keepers are conservative, and not inclined to adopt any new fad except on careful and thorough trial on a limited scale; and the adoption of this race of bees by the Franceses must indeed be quite a feather in the little caps of these black fellows.

We finally went into the honey-house where there were barrels, large and small; but not many of them were full of honey, owing to the short season. They find that barrels are the best packages for large amounts of honey, and, when properly coopered and cared for, afterward give but little trouble from leakage. They do not need to be waxed inside, but should become thoroughly dried, and the hoops should be driven down before filling the barrels with honey. They had had, for experiment, some large barrels made, holding 500 lbs. and over; but these were too heavy and bulky to handle. The smaller size, holding about 300 lbs., was much better. The door of the honey-house communicating with the apiary was on a level with the ground. The other door was just opposite, facing the roadway, and was just high enough so a barrel could be rolled from the floor into a wagon-box.

We next looked at the France extractor, which is of the non-reversible type. The inside reel was made of wood, for lightness and stiffness, and the whole can was put in a stout frame to hold it to the proper height for easy handling, and to protect it for hauling whenever it should be necessary. The senior France said the non-reversible would extract all the honey one could get, but the junior France expressed a desire to see the Cowan, and was beginning to feel, from the reports he had seen, that it must be quite an advantage over most of the non-reversing kind. Another year they will give one a test.

In another room in the same building was a large and fine collection of stuffed animals—some of them exceedingly rare—most of them of the junior France's preparation, and a few that E. France himself had prepared. Both of the Franceses are expert hunters, and occasionally take an outing.

CHAT ON EUROPEAN MATTERS.—NO. 3.

By Charles Norman.

Most of both the Swiss and French bee-keepers produce extracted honey. By the way, there is a honey-knife advertised, enabling one to uncap the two sides of a frame (of a certain size) without turning it. What do you think of that? Would it not, if really practical, be quite a splendid little implement? Well, Mr. Bertrand, being a bee-master, recommends, of course, the production of section honey, and gives in an article of his all the requisite directions how to proceed. He is not, however, in favor of our American square sections; first, because one might (in the super as well as in the shipping-case) place them wrong side up; and, second, because they do not correspond with the metric system, weighing only from 420 to 440 grams (or about 15 ounces) which latter argument can not well be refuted. He therefore invented and recommends what he named the "French section," which is longer than deep, measuring 130 by 105 by 50 millimeters (or about $5\frac{1}{16}$ by $4\frac{1}{8}$ by nearly 2 inches thick), weighing 500 grams, or about 18 ounces. It can be adapted to all kinds of hives.

Mr. C. P. Dadant, in the *American Bee Journal*, published two articles in which he spoke against the use of sulphuric acid for rendering wax. Mr. Bertrand has translated and reprinted both of them.

Naphthaline is asserted to be a preventive of bee-stings. A correspondent says positively that bees, when going for his "naphthalined" hands, always desist from their aim.

Concerning "laying workers," Mr. Gillet, a teacher of apiculture, has observed that, when a colony of laying workers is dumped or brushed on to the ground at some distance from their hive, the laying workers do not return, but stay

*A full detailed description, with drawing, of the shot-tower hives is given on page 369 of GLEANINGS for 1890.

in a lump on the ground. He tried, and succeeded in two ways in getting rid of "those devils of fertile workers." The first is a little more tedious. He took two frames of brood, of all ages, with the young bees from one of his best colonies, put them into an empty hive, and put the same into a dark place, to stay there for three days. On the evening of the third day he placed this nucleus, which then had five queen-cells, on the stand of the laying workers, which, in turn, were carried to the cellar. Some days afterward it was taken out again and placed at some distance from the nucleus, and the bees were brushed on to the grass. Most of them, excepting, perhaps, a thousand or more, returned to their old stand, where now and then some bees were killed, "but this was all." Those bees which remained on the grass were mercilessly destroyed. A month later he opened the hive and found a "magnificent" queen (reared in a two-frame nucleus).

The second way is less complicated. One evening he gave the same scent to the colony with the laying workers and to the weakest of his other colonies, on account of fighting. On the following day he moved the colony with the laying workers about 350 feet from their old stand, on which he set the scented weak colony, and brushed the bees off on the ground. Nearly all went back to the old stand, and there was no fighting. About 300 or 400 bees remained on the ground and were killed. Eight days after, he opened the hive and every thing was normal.

In speaking of the preservation of drones for late queen-rearing, Mr. A. I. Root, in his A B C book, says: "I believe drones have been, under such circumstances, wintered over." Well, one Mr. Cédre, relates that, after sufficient rains toward the 15th of October, the queens not only laid pretty well, but that drones had been reared, and says: "These drones, in small quantity, to be sure, have wintered over in two or three hives, and died after some flights in March. This is the first time I have observed this fact."

St. Petersburg, Fla.

DRONES, DRONE-LAYING QUEENS, AND LAYING WORKERS, USELESS.

AN INTERESTING EXPERIMENT.

By Willie Atchley.

If I remember aright, I promised the readers of GLEANINGS that I would test the value of drones from drone-laying queens and those from laying workers and unfertile queens. Now, I must recall the promise that I would try this on an island 18 miles out at sea this year, and report. As the experiment would cost me in cash \$50, not counting time, I had to postpone the scheme till some future time. As the hot July wind very nearly ruined our nu-

clei, we had to use all the means we had to restock our queen-rearing business, and had no money to spare for the proposed experiment. But as we have places here on the prairie where we can get five or more miles away from bees, timber, or anybody, we tried the experiment in a small way. While this could not be taken conclusively, I am now fully convinced that I do not want any of my queens mated with any but drones from best fertilized queens. We are satisfied that nearly all, if not all, the queens put on the prairie were mated with the drones from laying workers; and while they seem to be just as prolific as any queens, they are ruined by being mated with these undeveloped drones. What I mean by undeveloped drones is this: drones from any but good fertilized and laying queens, as we all know that a queen is not thoroughly developed till she is mated and begins to lay. Then a drone from any other source is from an undeveloped mother, and is an undeveloped drone.

Now, our experiment queens would mate and lay as well as any queens, so far as we could see, in worker-cells, and nearly all the eggs would produce drones. My idea is, that the mating of these queens by such drones was so feeble that not one egg in twenty would touch the fluid and be transformed from a drone to a worker egg, as the fluid is so scant, and the vessel containing the same is not full enough, and the eggs pass right on by without being impregnated, and all caused from improper mating.

I am now of the opinion that weakness, either in the queen or drone, will cause a defect in the mating, and a drone-laying queen will be the result. I believe that a queen can be fertilized by an undeveloped drone, and yet no worker eggs be laid, as the fluid deposited by the drone is so small that the duct that conveys the eggs is not touched at all by the fluid from the drone, just the same as an egg deposited in a drone-cell for a drone; still, nature may be satisfied to such an extent that the queen may think she is depositing worker eggs. I have now come to the conclusion that I shall never allow any but drones from my best queens to fly near my queen-yards, for I believe it will sooner or later prove very damaging. I am perfectly satisfied that the queen has the power to deposit eggs without having them come in contact with the semen, or fluid deposited by the drone, and *all* such produce drones.

I should be glad indeed to have some of the old heads take this thing in hand, say Doolittle or Prof. Cook, and see if I am not right. I do believe that we as bee-keepers are standing in our own light, and sleeping over our rights, not to have this thing put through and settled beyond a doubt, as poor mating is *always* a loss to the bee-keeper. We had arranged to have some of these drone-laying queens dissected and thoroughly examined by Dr. Howard, at

Dallas, during the fair; but professional duties kept him, and nothing was done.

Now, who will volunteer to take up this matter with me next season? and how many would be willing to throw in a dollar to have this all tried 18 miles out in the ocean, so that answers to such puzzling questions could be answered beyond a doubt?

Beeville, Tex.

[Here is \$5.00 from GLEANINGS.—ED.]



SOME KINDLY HINTS TO YOUNG WOMEN.

ESPECIALLY THOSE WHO ARE AMBITIOUS TO LEAVE THE COUNTRY AND FIND A PLACE IN THE CITY.

By Mrs. N. L. Stow.

Mr. Root:—I was very much interested in Rev. W. T. Elsing's letter in Nov. 1st GLEANINGS, particularly as I know his sister, who is a resident of this city, and who, years ago, was for awhile a member of my own family. I am sure he is well fitted to lend a helping hand, and give an encouraging word, to all who are struggling for better things. I would take his last paragraph, and, with a slight change, would say, "My advice to all young women is, to let well enough alone. If you have a rich uncle or good friend who will give you assistance, well and good; if not, stay at home and learn to take care of bees," if you have not something better. I do wish I could impress the truth on the hearts of all young girls, of the fearful risk they run in coming to a great city, alone and unprotected. It is pitiful. It is wicked to allow it; and yet they are coming every day. I am acquainted with the workings of that helping hand in Chicago that is watching for and taking hold of such if possible, and starting them right, or looking for them and pulling them out of the mire, if they have fallen, and setting them on their feet again, or sending them back to the home they never should have so ignorantly left. It is called the Anchorage Mission, and a wonderful work it is doing. Near my own home there is an institution for the rescue of homeless and helpless girls—the Illinois Industrial School for Girls. My husband has conducted a Sunday-school for them for over fourteen years, so we know much of what life is for friendless girls; and, knowing it, I would plead that parents do not let their daughters go from home to earn their own living—at least, not to cities; for where one may succeed, many more wear out their lives trying to make both ends meet, or, worse still, blindly fall into the trap of the evil one. Girls of to-day are restless and ambitious;

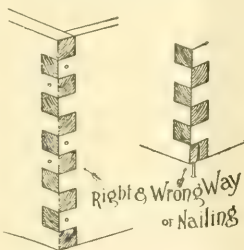
rightly or wrongly so, as you will, women are becoming more and more independent; you can not help it any more than you can stop the march of reform in all the phases of life; but you may lead and guide them aright. If you are a bee-keeper you can get your daughters interested in your work, and have them help you, and be very sure to give them their pay or their share of the profits, the same as you would any one else. Let them have periodicals, and encourage their little ambitions, and you will, together with them, be lifted up into something better. Surely farmers who are spending their lives trying to make something grow should see to it that their own lives, and those of their families be not dwarfed.

How many parents fail to pluck the fruits of peace and joy from their family life because they have neglected to prune and train and develop the growing minds given into their charge! Surely life is more than living, and he who lives the larger life lives most.

Evanston, Ill., Nov. 30.



Friend Ernest:—In your illustration of Dec. 1, page 908, providing, as I think is the case, the



tenons are square, or nearly so, I can't see why the lowest nail in the "right way" wouldn't split the wood just as quickly as the nail in the "wrong way." You surely will admit that the

nail in the wrong way will hold far better. As you may have guessed, I made those hives, and I can't think they are so awful bad.

Chicago, Ill., Dec. 5.

C. C. MILLER, JR.

The following is the reply:

Reverting to the cut on page 908 of GLEANINGS, of the right and wrong way of nailing, I would say that the lowest nail of the former should not have shown. The cut as now reproduced is as it should be. You will readily see that the other nails put in the "right way" can not split, because each tenon is held on each side by its neighbors. No, I can not quite admit that the nails put in the "wrong way" would hold far better," for the very reason that the two boards are not held together by the drawing power of the nails. All nails, especially cut nails, and cement-coated wire nails, such as we use, have considerable drawing power, as you may know, and the strength of the corner depends largely upon how *tightly* the tenons are drawn into their places. You may drive the dovetailed corners as tightly as you can; but without the hugging power of the nails driven through the tenon into the end of

the other board, they will spring out a little. When you nail up the wrong way, the drawing power is the wrong way; or, at least, it does not restore the tenons to the tight contact that existed under the blows of the hammer while the dovetails were being pounded together.

Perhaps I can not explain to you theoretically why there is a difference; but there is a difference in practice, for we have tried both ways in our shop. While I do not wish at all to criticise your nailing, I observed that, where the nails were put through as they should be at the center of the boards, they drew the board up tight at that point; but near the outside edges there was a slight gap on nearly all that I examined, and now and then a split tenon.

I see now that I did not make myself entirely clear, and did not emphasize the most important feature; namely, the drawing power when the nails are put in the "right way."—Ed.]



RAISING QUEENS.

Question.—I attempted twice to raise queens over zinc excluders, according to your book, tiering up until queen-cells were started to get royal jelly, which was put into cell-cups, and larvæ transferred into these; but the bees refused to accept them. In looking a day or two afterward I found in both cases that the bees had removed the larvæ and royal jelly, and had slightly rounded the edges of the cell-cups. Every thing was done according to directions to the best of my ability. Where does the fault lie—with me or the bees?

Answer.—It is a singular fact that about one out of every fifty who try the plan of rearing queens as given in my book make an entire failure of it. Of the other 49 who try, forty report a perfect success, while the other nine are puzzled and perplexed over their not being able to do better than to secure from one to three perfect queens out of every lot of cell-cups tried. But while this is so, there is one thing worth mentioning, which is, that the longer those who have poor success try the plan the better they succeed. If I am correct, the editor of GLEANINGS had poor success when he first tried to raise queens this way, but afterward made a success of it. From the above I am compelled to say that the fault, when a failure occurs, must be in the operator, for, so far as I am aware, bees behave very much the same, whether it be in York State, Pennsylvania, Florida, Texas, California, Canada, Europe, or Australia, as I have reports of perfect success and also of failures from all the places mentioned, and from many others also. If any man or woman makes a perfect success of the plan in Pennsylvania (where the asker of the question resides), should not another make the same success providing he did *exactly* the same thing? As forty out of fifty do make a perfect

success with the plan, it would look as if those who make a partial or entire failure in the matter failed in some respect to work in all the minutiae of the matter in the same way the successful ones do. As I mistrust that more fail in the matter of the transferring of the larvæ than anywhere else, I am constrained to give the fullest possible directions in this matter. To those who have not succeeded I would say, wait about trying again till swarming-time, then take some of the queen-cells which the bees have prepared, from the hive, taking such as have plenty of royal jelly in them; and, after having removed the larvæ occupying these cells from the royal jelly, transfer larvæ from your select breeding queen to the royal jelly left just as you removed the original larvæ from it. Three days previous to this prepare a colony by removing its queen, and at the time you transfer the larvæ take all of the brood from it, giving it or allowing it to have three or four frames of honey or combs two-thirds or more filled with honey, as given in one of the earlier chapters of my book. Now place these cells on a stick by dipping the bases in melted wax, or stick them on the sides of the combs already in the hive, *a la* Willie Atchley, when you will place them in this queenless and broodless colony for perfecting. If this is a success you may know that there is no trouble on your part in the transferring process; but should it not prove successful you may rest assured that you killed the larvæ in some way in manipulating them; for a queenless and broodless colony, fixed as above described, will raise a queen from any eggs or larvæ which have any vitality in them. If you succeed here, try the same natural cells in the upper story of a tiered-up colony; and, if I am not greatly mistaken, you will succeed here also, unless you try in early spring or late at fall, which you can not well do if you take cells from swarming colonies. If you succeed with these swarming-cells, and can not with the cell-cups, then you may know that there is some mistake in your manipulation of the royal jelly, or else the wax used in forming the cell-cups is offensive to the bees, or not fashioned as it should be in some way. To find out which of these is the cause of failure, instead of using royal jelly, transfer the larvæ to the cell-cups by the Willie Atchley plan of removing cocoon, larvæ, and all, to the cell-cups. If you now succeed you may know that the trouble was in manipulating the jelly. If you do not then, the cell-cups are at fault. If you have made no success with any of your trials till you transferred the larvæ by means of the cocoons, then you may know that you handled the larvæ in transferring in such a way that you killed the same, and here is where you are to look for the trouble. If you think that you failed in handling the larvæ, allow me a few suggestions.

Make the point of the quill used in transfer-

ring very thin and quite broad; then give the point much curve, so it will fit the bottom of the cells nicely. Now, before trying to transfer the first larva, dip the point in royal jelly till it is thoroughly moistened with the same, when you will note that, as you pass it under the larva, said larva is floated up on this royal jelly adhering to the curved point of the quill, so that it does not touch the quill at all, so can not be injured if you use any care in setting it down in the royal jelly in the cell-cups. If you are bothered about seeing, shave the piece of comb containing the larva down almost to the septum of the comb, or base of the cells, when no one should have any difficulty in seeing perfectly who can read the print of these pages.

But perhaps you tried the plan of queen-rearing too early in the spring, or during cool weather in September or October. Or perhaps you did not feed the colony when honey was not coming in from the fields, or did not have unsealed brood in the upper story; any or all of which would tend toward a failure. If the weather is cool, and no honey coming in from the field, the bees should be fed till they are all alive and active, the same as they are when honey is coming in from the fields and at swarming time; for if we would raise good queens at any time of year these conditions should be brought about as nearly as possible.



PINE TAR FOR FEEDERS.

If Dr. Miller will take pine tar, and work in air-slaked lime, to the consistency of putty, he will find the article he asks for in "Straws," Oct. 15. As it hardens quickly it is best to mix but a small quantity at a time. For cracks in hives, leaky pails, or other articles, it is easily applied, and durable. For hive-covers of canvas, take pine tar, mixed with ocher into a soft putty; let it stand 24 hours, and thin with linseed oil to the proper consistency. After tacking the canvas around the edges of the cover, wet it thoroughly; and after the surplus water has run off, give it a good coat of the paint, which can be repeated, if necessary, with lead, if the color is objectional.

New Smyrna, Fla. JNO. Y. DETWILER.

LIST OF SUBSCRIBERS ON THE WHEEL-ROUTE.

I have recently received some back numbers of GLEANINGS, from home. I would suggest to Uncle Amos to put a list of his delinquent subscribers in his pocket when he is out on his wheel. He probably passed 602 South Metcalf ("Wapak" road) the evening he was wanting information regarding those "vast reservoirs of oil." have been making 'em for the last nine

years, and guess I could have told him "sumpin"—a' done it too—probably got permission to show him around our \$2,000,000 refinery and paraffine works; Chicago pump-station, with its pumps that have pushed an eight-inch line of water from Lima to Chicago, 210 miles; gas service, etc., sufficient to take all the time he had to spare. J. K. McCLURG.

Oil Centre, O., Nov. 26.

[My good friend M., it is not only delinquent subscribers, but subscribers of any sort, of whom I ought to have a list when I go out wheeling. I have resolved many times that I would carry one the next time; but it is not every reader of GLEANINGS who is such a devoted friend to A. I. R. as yourself and friend Matteson, of Kreidersville. Another thing, I almost always go off into regions where I did not expect to go. If I had a list of the whole State of Ohio, then I could hit them. But to get down to business, I am exceedingly obliged to you for your kind offer of services; and when we have good roads once more I am going to make a second trip for further investigations. Many thanks. A good many times, after I get home, I feel ashamed of myself to think I have been so near some old veteran and did not know it.—A. I. R.]

LEARNING TO RIDE A BICYCLE.

Seeing you are a great amateur bicyclist, could you not publish instructions for beginners? We are a family of eight, and we are all trying to learn. X. PICQUET.

Sainte Marie, Ill., Sept. 28.

[My good friends, as I learned mainly after I was over 50 years old, and made pretty hard work of it at that, at least on the start, very likely my suggestions may be of some avail. Perhaps the most important thing is to find a good place. You want level ground, tramped hard and smooth. There is no better roadway for a wheel than ground that is tramped hard and firm and smooth by many feet. Then the place should be wide enough—no stumps, trees, nor any thing to hurt you, on either side. It takes lots of room for a beginner. Lastly, the ground should be a little down hill, so the beginner will not need to exert much strength to start with. If there is plenty of grass pretty tall, each side of the path, all the better. Take the wheel to the top of the slope; hold by the handles; put your foot on the step, and ride down hill. After you have done that a few times, get on the saddle and learn to guide the wheel. After you can ride from the top of the slope to the bottom, sitting in the saddle, you can soon get your feet on the pedals. You will then need no further instruction from any one. At about this stage, however, you will want a long piece of nice level road before you, and there should be a similar place (down slope) a little distance away, where you can get on to start back to the place of starting. The best place we have around Medina is on the race-track at the fairgrounds. In this case the beginner comes around to the place of starting, and so does not get away off from his companions or his home. While in Missouri my nephew learned to ride fairly well in about two hours. The ground was very hard and smooth in their dooryard. After he had got to going, he practiced by running around the house. I think he could have ridden a mile without getting off, within two or three hours after he first tried to ride a wheel; and he had less instruction than I have given you in the above. Perhaps I may

add that he is an expert in horsemanship, and is just 21 years old. If you are over 50 it will take you longer, and you must not be discouraged if you find a few bruises when you undress to go to bed at night.

Success and best wishes to that family of eight, friend P.—A. I. K.]



MR. ALLEY says, "Give the bees a chance to rest all winter. Do not disturb them at all." This is good advice, providing you know they have been fed and have sufficient stores.

THIS seems to be a rather open winter all over the country, and it behooves every bee-keeper to see that his bees do not starve. While cold winters are severe on outdoor unprotected colonies, the bees are not as liable to rear brood or use up their stores. But during open seasons like this the very opposite is true, and colonies are lost, not by cold, but by starvation. *Later*.—Since writing this, the weather has changed to almost a blizzard this morning of the 27th.

I EXTRACT the following from the *Nebraska Queen*, a new bee-paper. It is a pretty good sample of the rest of the editorial matter:

I fear there are many swarms of bees in Nebraska that will have to be fed or they will starve before you can feed in the spring. I have heard many, of late, say their bees may starve before they will spend any more money on them. Ah, my friend! how can you talk that way? Show me what has paid the past few years that has been left to its own ways. Gentlemen, your stock would perish and die this winter if you had not economized and saved all your straw, hay, and cornstalks. Many are, to-day, wondering how their stock will get through the winter. It will be through your careful care for it.

THE following are a few brief pointers in regard to advertising, that I take from *Printers' Ink*. This is getting to be the season for advertising, and I feel sure that our advertisers, or those who expect to be with us, will profit by the suggestions. Notice particularly the last paragraph. You will see how nicely it dovetails in the editorial on page 876. It is far better to invest what money you have, in a number of small advertisements, than to put it into one big flaming one and let it stop there.

Advertising is like a carriage—its progress is impeded by getting into ruts.

A great many persons will read a short story who have not time to read a long one. Same way with an ad.

Different persons read the same thing in a different manner; hence the necessity of presenting the same subject in different ways to convince different minds.

Nails driven but half way do not fulfill an intent. Half-hearted blows in advertising are as futile. Concentrated applications alone create impressions.

Merchants should bear in mind that "selling goods below cost" is unprofitable in more ways than one. Most people think you're lying, and trade elsewhere; while those who believe you, will stay away because they don't like to trade with a fool.

A dentist could probably drive home the filling in a tooth with a single blow from a large hammer; but he does a better job, and the job lasts longer, by using a small hammer and repeating the blows. The same principle holds good in advertising.

THE CROSSES OF 5 BANDERS CROSS, BUT WELL MARKED.

THERE is one objection to the five-banded Italians that I had not thought to mention before; namely, that a cross between a queen of five-banded stock and a black drone, or a five-banded drone and a black queen, will, according to our experience, result in all of the bees showing at least three bands, and in some cases four. Now, these bees, so far as *markings* are concerned, would pass for pure Italians, because, forsooth, they show three yellow bands and more; but they are, just the same, hybrids; and this accounts for the way some of the bees of five-banded stock are so "awful" cross. They are not pure; the owner says, "They show four bands, but sting like hornets."

I do not wish to appear to discourage the business of breeding five-banders; for there are some careful breeders who run for both color and business; but the color craze has been carried so far by many of the breeders, all other qualities sink into insignificance when compared with the one thing—"lots of yellow." Color will not make prolific queens, neither will it add anything to the honey crop. On the contrary, it will detract from both.

THE SHOW OF HANDS ON THE BEE-PARALYSIS QUESTION.

THE following is the revised list of names of queen-breeders up to date who have signified their willingness to destroy the first case of bee-paralysis as soon as it appears in their yards, within 24 hours after its discovery. I am well aware that some think such a procedure unnecessary; but it will surely stamp the disease out entirely, if all queen-breeders will take pains to pursue this policy for a few years. Foul brood, I feel quite certain, can not be transmitted from the ovaries of the queen, Cheshire to the contrary; and I think all practical apiarists, and those who do not depend upon fine-spun theories, agree with me. But bee-paralysis, assuredly, can be so transmitted, and should be treated accordingly.

W. H. Laws, Lavaca, Ark.
J. P. Moore, Morgan, Ky.
J. J. Hardy, Lavonia, Ga.
F. A. Lockhart, Lake George, N. Y.
F. B. Yockey, North Washington, Pa.
H. G. Quirin, Bellevue, Ohio.
Cleveland Bros., Stammer, Miss.
G. W. Hufstедler, Clarksville, Tenn.
Leininger Bros., Ft. Jennings, O.
Jennie Atchley, Beville, Tex.

By the way, I notice by the *Apiculturist* that Mr. Alley thinks the course we are pursuing in

this matter is foolish, and that a better way, and all that is necessary, is to simply destroy the bees. He holds that "the brood, honey, and combs are not diseased."

But over against this we have the testimony of Mr. T. S. Ford and others who have experimented pretty carefully, showing that the disease is carried through the combs, or the hives, for he experimented on this very point. I grant mild measures may work very satisfactorily in the North, or in any climate like that of Mr. Alley's. We do not fear the disease north of Mason and Dixon's line. The probable consequence of its being transmitted through queens from the north when sent south is what we do fear.

When some one else says something that we agree with, we are pretty apt to say, "That's good." Well, here is something from the last *American Bee Journal* that I think is "good:"

Come to think of it, I too must take exception to the *American Bee Journal* editor regarding his conclusion concerning the editorial "we" and the individual "I"—and the more concur with Bro. Ernest Root's preference. Why? Well, I'll tell you. The "I" gives all statements a more decided, independent, and responsible force; it admits of no equivocation; it courts no excuse; it holds itself personally amenable for the utterance; it practically affirms that he is the writer—"If you have any objections to urge, I am ready to afford you satisfaction!"

Now, it is not so with the usual "we." Not only does it fail to be commendably modest, but it lacks individuality and manly grit! It nebulously suggests that others are implicated in the assertions made; it is only another way of expressing the irresponsible "they say," which phrase may or may not include half the inhabitants of a given place—a weak, cowardly intimation, too frequently protected. Of all things to me most admirable is the exhibition of manly courage of one's convictions, of placing one's self firmly, honestly, and independently before the public, ready to maintain the principles he believes to be right; courting criticism from whatsoever source, and I know of no more unflinching vowel for the purpose than a respectful "I."

EMM DEE.

HOW TO FEED IN MID-WINTER.

QUITE a number have asked how to feed their bees during mid-winter. I assume, of course, that your colonies have been neglected for some cause or other, and you now discover that they have hardly sufficient stores to carry them to spring, let alone that season, the most trying of all. In the first place, it is always better to feed in the usual manner in the fall; but when that has not been attended to, something else will have to be done now, for in this case surely the motto holds true, "Better late than never."

The best thing to give the bees is combs of sealed honey. The dry ones should be taken out and the filled ones put in their places. It might be advisable to leave one empty comb in the center, with two or more combs of filled stores on either side. But we will suppose that you have not the combs. Cakes of maple syrup answer very well when laid over the tops of the frames under the quilt. But you have

not these. Cakes of dry candy should then be used. The following are the directions given in our A B C of Bee Culture:

Into a tin sauce-pan put some granulated sugar with a little water—a very little water will do. Make it boil, and stir it; and when it is done enough to "grain" when stirred in a saucer, take it quickly from the stove. While it is "cooking," do not let the fire touch the pan, but place the pan on the stove, and there will be no danger of its burning. Cover the dining-table with some newspapers, that you may have no troublesome daubs to clean up.

To see when it is just right you can try dropping some on a saucer; and while you are at work, be sure to remember the little folks, who will doubtless take quite an interest in the proceedings, especially the baby. You can stir some until it is very white indeed for her; this will do very well for cream candy. We have formerly made our bee-candy hard and clear; but in this shape it is very apt to be sticky, unless we endanger having it burned, whereas if it is stirred we can have dry hard candy, of what would be only wax if cooled suddenly without stirring. Besides we have much more moisture in the stirred sugar candy, and we want all the moisture we can possibly have, consistent with ease in handling.

If your candy is burned, no amount of boiling will make it hard, and your best way is to use it for cooking, or feed the bees in summer weather. Burnt sugar is death to them, if fed in cold weather. You can tell when it is burned, by the smell, color, and taste. If you do not boil it enough, it will be soft and sticky in warm weather, and will be liable to drip when stored away. Perhaps you had better try a pound or two at first, while you "get your hand in." Our first experiment was with 50 lbs.; it all got "scorched" somehow.

But suppose you do not wish to bother with the candy-making. Stick candy, or any kind of candy that is not colored or adulterated, that is made from pure white sugar that is hard, would answer. The only trouble would be, it would be rather expensive compared with what you could make yourself. "Good" candy—that is, powdered sugar and honey mixed into a stiff dough, may be used; but the only objection to it is, the bees suck out the honey and let the dry grains of sugar rattle down between the combs; then there is danger of its "running" and making a dauby mess.

JOHN THORNE CALVERT.

SINCE the Home of the Honey-bees has become an incorporated company, I have thought that many of our readers would like to be introduced to our secretary and treasurer, Mr. J. T. Calvert, who, although he transacts a very considerable part of the business, is not generally known to our readers, though very many of them have read letters from here dictated by him.

Mr. Calvert was born Dec. 7, 1862, in Victoria Co., Ontario. His grandparents on both sides came from old England. He was raised on a farm at Reaboro, his old home, and educated at a country school about two miles distant; and numerous were the times when paths had to be cut through the snow across the fields. This was a good school, and Mr. Calvert made the best possible use of the privileges afforded him. Indeed, if there is any thing that will clear up a youth's head, and make him do the best work, it is to walk two miles to and fro from school.

He was soon proficient enough to pass the examination for what is known in Canada as the third-class teachers' certificate; and this means a good deal more than the ordinary certificate, so called, in this country. Later on he took a course in the Ontario Business College at Belleville, doing the work of a sixteen-weeks' course in eleven. After this he spent six weeks in Toronto in a wholesale house; and from there he came to Medina in 1881.

The year before, at home, he had become interested in bees. He obtained some queens of W. G. Russell, now of Millbrook, Can., and at about the same time a few stray copies of *GLEANINGS* fell into his hands. As a result of this a correspondence began, resulting in Mr. Calvert's coming here to work.



JOHN THORNE CALVERT.

We had previously (as we do now) received a great many applications from outside parties; and as a general thing we had told all of them that it was no use for them to apply so long as so many applicants were living at Medina. But there was *something* in John's letter that impressed A. I. R. with the fact that he was a boy of the "right sort" of stamp, stamina, and character, and so he was induced to break over his custom.

John was willing to work for small pay, that he might have the privilege of learning the business; after which he expected to go back to Canada to establish a supply-house with his brother Albert, who was then living. But John developed such a proficiency at the Home of the Honey-bees, and seemed to fit so well in the harness, that several things conspired to change his plans.

He first began work in what we call the sam-

ple-room, "tying up sticks." The following summer he took charge of the apiary while the writer was at school in Oberlin. We had a heavy queen and bee trade that year, and so our new man was pretty well initiated.

In order that he might make himself more useful he decided to take a course of studies at Oberlin, working his way along, and paying his own expenses as he could. He therefore attended school at this institution, with the writer, off and on, for four years, when ill health on the part of A. I. Root, brought on by the heavy responsibilities of the rapidly growing business, made it necessary for one of "the boys" to come home—at least for a time. I came first and began on the journal in the summer of 1885, doing what I could to lift the load here; and during the following spring John came, and in his turn began to lift the burden in the commercial department. I have said that several things conspired to change his plans. I don't know which was the most potent in inducing him to become an American citizen. I need not go into details, but in September of 1886, shortly after leaving school, he married my oldest sister, Maude.

A naturally good memory for figures and names, his general aptitude for business, that seemed to be born in him, enabled him to be a proficient clerk. First he took charge of the estimates and of the buying of the goods; and later on he assumed, practically, control of the whole commercial department, including book-keeping, buying and selling, etc. Under his management branch houses were established, and other depots for the sale of our apicultural supplies were stationed all over the United States; and while we had a very good foreign trade it continued to increase, so that the business changed from what was to a large extent local and retail to what you might call trans-continental and wholesale, although the retail business and local features of it were preserved.

Mr. Calvert makes a liberal use of both the phonograph and stenographer in his general correspondence; and right here I might say that nearly all letters relating to the commercial department come under his general supervision. He is an indefatigable worker; and his general good health, owing to his regular habits of eating and sleeping, enables him to do more business than most men.

He is not less active in his religious life. He has been intimately connected with nearly all phases of the Christian Endeavor movement. He has been president a number of times of our local church organization, and two years of the county, and is now president of the Medina Co. Sunday-school Union. He is also active as a Sunday-school teacher, and greatly interested in all work of missions.

Physically he is of medium height, rather stoutly built, of light complexion, and of pleasant face and manner.



The next day was Sunday, so I could not do very much in the way of investigating the queer surroundings of my relatives; but I was so full of questions, and some of them that would hardly keep over night, that I am afraid I did a little investigating, even on Sunday. We found a Congregational church, and a very bright, wide-awake Sunday-school. The pastor and the superintendent were on the lookout for strangers; and, in fact, the latter person, after the services were over, kindly took our horse by the bits and waylaid Mrs. Root and myself and our relatives. They took us over to his own house for dinner, in spite of the protests of the women-folks that their own dinner was awaiting them at home. Then they gave us the wonderful electric water to drink. I was thirsty enough, after my week of wheeling, to enjoy it to its fullest extent. Judge Wallis, our host, gave me much information in regard to Lebanon and its people. We finally got back home, and I was very anxious to attend a Sunday-school, about a mile away in the woods; but they told me it was too late, and that we should have to give it up. A few minutes later I caught a glimpse of some feminine apparel belonging to somebody who was evidently slipping away and in haste to get out of sight. They did not answer my questions very promptly and squarely; but I soon guessed that Mrs. H—by the way, when we were boys and girls together we used to call her "Mary," for short, and I think I shall call her Mary now. Well, Mary had slipped away and started off through the woods, to that Sunday-school. It seems she had the lesson-papers, etc., that they would need. The foot-path through the woods was a much nearer way than around the wagon-road. As soon as I could make a little change in my apparel I started after her in spite of protests. Just as I was disappearing down the lane, the young lady whom I met first the evening before, and whom I shall call May, called out and gave me some hasty directions in regard to the footpath through the woods. I smiled at their directions, thinking I was smart enough to catch up with any woman on foot before she could get out of sight. Well, I shall have to acknowledge that a *Missouri* woman was a little too much for me. Had I not listened to May's directions I might have been wandering in the wilderness up to this time for aught I know. I finally caught a glimpse of Mary just before we came out into the clearing. The schoolhouse is in the center of a circular spot right in the wilderness, and the dwarf-oaks are so dense that one looks around the circle in vain to find the way out. Judge Wallis and the minister were there before me, with a double buggy, and I laughingly asked them where in the world they got inside. The judge said he could hardly tell; but when they went home they were going to drive clear around the outside until they should come to a vacancy in the trees where they could squeeze through.

The country schoolhouse was pretty well packed with people. Mary did not know that the minister and the judge would be present, and so she felt anxious about having somebody on hand to look after the young people in case the regular leaders did not appear. The most of the gathering consisted of boys and girls, such as you might find in any neighborhood. As the pastor from town was present, we had a

short preaching service after the lesson. The discourse was taken from the forest-leaves that had just been nicely decorated by the first frost of autumn.

In almost every country neighborhood, especially where they are a little off from town, the boys and girls are always wanting to "go somewhere," especially during a Sunday afternoon in the fall of the year. Now, can any better place be devised than a Sunday-school in the schoolhouse, with a good sober spiritual man or woman to look after the young people? I often think of that pleasant walk through the woods on our return home. Thirty years ago both Mary and myself were quite intimately acquainted. But while in our teens, neither one of us, I fear, thought very much of spiritual things. What changes time had wrought! In those days gone by, a Sunday-school in the country would have been the last thing to attract my attention, unless, indeed, I went to have some fun. May God forgive me, as my memory goes back to those old times, to think that once or twice my principal motive in going was, pretty nearly, only to create disturbance. It may be well for me to think of this when I feel inclined to criticize too severely some of the young people of the present day.

Monday morning I was wide awake for investigations. The view of that great spring impressed me with the idea that the locality was cavernous, like the region around Mammoth Cave; and even before breakfast I found a low place, right in front of the house, where the waters during a heavy rain went down and out of sight. There was originally a sort of cave there; but in working the road it had gradually filled up. Furthermore, in one of Rob's fields, during harvest time one of the horses broke through and went down into an underground pit, and they had to stop work and get it out. As this pit was quite a nuisance in the middle of the field, they had filled it up with trash. When I protested, Robert told me that we should find caverns before I left, without going to the trouble of digging. Judge Wallis told me that, in drilling for that beautiful water in Lebanon, the drill several times passed through cavities, and they were obliged to tube the well through these to prevent losing the water.

Right here perhaps I may say a word in regard to the wonderful "electric water," as they term it. In the first place, if you hold a knife-blade in the stream of water as it comes out of the iron tube it will become magnetized, showing the wonderful electric properties of the water. Secondly, when this water is used for making steam, if you hold your hand in the jet of steam as it issues from a pipe, electric lights or stars will be seen on the ends of your fingers. These facts are vouchsafed for by the judge himself, for he had seen them with his own eyes. As it was Sunday, and I was his guest, I did not feel like taking him to task just then and there for the superstition; but, dear reader, let me say to you that all these stories about magnetic water are right along in line with the Electropoise swindle. The man who puts the knife-blade into the stream of water from the medical well, takes pains to draw the blade across the top of the *iron tube*; and it is this iron tube and not the water that makes the knife magnetic. Any iron tube or iron bar that has been standing awhile upright in the ground is quite sure to become magnetized. Men who drill wells are familiar with this fact. In fact, iron tubes sometimes become so strongly magnetic that they will pick up a small-sized adjustable wrench. A friend once told me that the water in a glass bottle taken from a magnetic well would magnetize a

knife-blade. He had been paying a dollar a bottle for said water, for curing rheumatism. When I told him how he had been humbugged he stopped wasting his money, and concluded it was something besides the water in the bottle that had affected his rheumatism. In regard to the sparks of electricity, if you will on any frosty night hold your hand in escaping steam from a boiler you will, if the conditions are right, see these same electrical appearances. In fact, this whole thing is mentioned in the books on electricity. But here in Lebanon they had built a great hotel, costing ever so many thousands of dollars, and put in an electric street-railway, and advertised far and near those wonderful waters of the electric well at Lebanon. Of course, visitors were shown the experiments in magnetism and electricity; and reasoning from what they saw with their own eyes they were not slow to have faith in this beautiful water with such strange properties. Some weak invalids could not stand a bath in the water, as it was so highly charged with electricity—that is, they could not until they got used to it, so it was said. Well, the proprietors of the scheme made lots of money for a time; but the hotel is now shut up and deserted. The electric-car line does not pay expenses. The water is given away to anybody who wants it. Let me say, however, that the water is remarkably pure. It is almost absolutely pure soft water, and I can readily imagine that people who do not have nice pure water at home may receive great benefit by going to Lebanon and drinking its pure water. I think, however, the benefit will be just as great if they would set some tin pans out during the latter part of any summer shower. Keep this water and store it up; or save the water during the latter part of a shower from any good *slate roof*. Store it in clean stone crocks, or have a real nice cistern, with some sort of pump that is not made of old wooden tubes or rusty iron machinery.

We soon made up a load and went to see one of the strange caverns scattered through the Ozark Mountains. Away out in the woods, almost on the summit of a good-sized hill, we found a great hole, perhaps 30 or 40 feet across. The inside of the hole had fallen out—or you might say with much truth the *bottom* had dropped out; and then away out under the side of the hill was an enormous cavern roofed with sloping rocks. At one side, by using care, one could climb down through the sand and gravel and broken stone. Inside there was nearly if not quite a quarter of an acre roofed over with limestone. Now, as this was on high land, and inside a good-sized hill at that, and during the most excessive drouth, almost, that Missouri has ever known, I hardly expected to find water; but, sure enough, we soon heard water dropping. It was dripping from the roof in different places. I soon satisfied *myself*, however, that this water did not come from water in the ground or in the rocks. It was produced by condensation. The day was quite hot and sultry outside. Well, this hot sultry air, coming in by circulation, as it struck the comparatively cold stones deposited its moisture, like dew on the side of a cold pitcher. When the drops were sufficiently large they ran together and trickled down to the lower portions of the roof of the cavern. Here they dropped off. By setting a tin cup in the right place, one could, in a little while, get a drink of pure soft water. In former times people had placed tubs (and we saw the remains of these) in order to catch this beautiful "spring water."

A few days after, we visited what is called Saltpeter Cave on the banks of the Gasconade River. There are acres of underground cav-

erns here in the cliffs beside the river. Stalactites and stalagmites are so plentiful that the dooryards all over Laclede Co. are decorated with them. Everybody who goes to the cave takes an ax and a lumber-wagon, and breaks off the icicles, some of them nearly a foot in diameter, and takes them home to place among the flower-beds in the front yard or beside the doorstep. Now, my impression is, although I have never seen the matter mentioned in works on geology, that these stalactites, etc., are formed principally by the condensation of the moisture in the atmosphere, especially during our hot summers. These cliffs are so honey-combed with caverns that warm air from the outside is continually rushing through in currents depositing its moisture on the rocky ceiling overhead, and then going back to be warmed up and charged with moisture again. Here in Saltpeter Cave, as it is called, the whole operation can be seen going on all the time. The icicles, as you might call them, are soft, and many of them feel quite greasy. The drop of water on the end is thick with minerals, sometimes almost like molasses. The currents of cold air rushing through take up the moisture, and the mineral accumulates. The strange part of it is, that, although the icicles are so soft and pasty on the tips where they are forming, and on the outsides, they are, in the center, a flinty rock. Some of the rooms in this cave are very beautiful. There are figures, and shrines and pulpits and gardens, and, in fact, one can imagine almost any thing wrought out in Nature's laboratory; and in this cave, at least, Dame Nature builds pretty fast. My friends told me that, even in a few years, great changes have been going on. I should not be surprised if these icicles grew an inch a month, or a foot a year.

There hadn't been rain for months. In fact, farmers were seen at all hours of the day, and on almost every road, driving their stock to the springs or to the larger pond-holes where the water was not yet exhausted. By the way, in some places in Missouri the only water they have to *drink* during such a season of drouth comes from these pond-holes dug in the ground. Now, in such cases is it any wonder that great cures should result by going to some celebrated spring, and putting up at an expensive hotel? Of course, the people were longing for rain. It came on the second Sunday of our visit, in the afternoon. We had been to church; but it was so rainy that the general conclusion was no one would be over to that Sunday-school in the woods. I decided once to stay at home, but I felt uneasy. Suppose just a few boys should gather there in spite of the rain, with no one for a teacher. I knew from experience that I could get through the path in the woods on my wheel, even if all the rest did say that the thing was impossible. The falling leaves kept the tires out of the mud; and as I had learned to dodge the bushes, and scorch when necessary, I got along pretty well. When I got out of the underbrush into the clearing, however, imagine my surprise at seeing a dozen or more saddle-horses hitched to the trees. Sure enough, the schoolhouse was almost as well filled as on the previous Sunday. Some of the women-folks had come a couple of miles in the rain. There was no superintendent, and nobody to take the lead. I finally volunteered; and if you will take my statement for it I should say we had a grand good time. I did not do *all* the talking either. The superintendent came in pretty late, but he refused to take my place. I did get him to talk, however; and one of his remarks I shall remember a long time. He said the greatest trouble with a good deal of our religion is that it is of a kind that will not

stand wetting. He said he hardly thought anybody would be there, but he finally decided to come. He was about to move out of the neighborhood, and here was a little flock of Missouri boys and girls in their teens, great stalwart young men of both brain and muscle, waiting, as it seemed to me, for somebody to form them into line. I took the liberty of selecting a nice young fellow for superintendent. He said he had only recently united with the church, and that somebody with more age and experience would do a great deal better. My friends, I do not agree with this kind of talk. A new swarm of bees will frequently work with double the vim, and gather ever so much more honey, than an old stock with double their numbers. Is not this true? Well, a new convert, even if he is not so familiar with the Bible, and does not know how things are usually done, will sometimes bring souls into the kingdom while one of the old deacons would be getting them into classes. No disrespect to the old deacons, however. They generally have enough to do if they keep bright and young in spirit, even if old in years. The boys were curious about my wheel. Some of them thought that, with the young Missouri horses they had there in the inclosure, they could throw gravel in my eyes where I had nothing but that little 22-lb. Victor. Well, may be they could. If I should ever have a chance to try a race with them I believe God would give me grace to rejoice and feel happy, even if they came out ahead.

I asked them about the state of temperance in their county-seat. Said I, "Boys, what on earth was it that brought the saloons back to Lebanon after you had once got them banished from your town?"

Nobody replied to my question just then; but quite a spell afterward a fine young fellow spoke up something like this:

"Mr. Root, you asked what it was, a while ago, that brought the saloons back to Lebanon, after we had once cleaned them out. I think I can tell you. It was the *love of money*."

There you have it, friends. That was a very short temperance speech; but I think it strikes at the root of the matter. Without *Christ Jesus* to drive *selfishness* out of the human heart, all schemes for temperance reform, or any other reform, in fact, *must fail*.

ROBBING SICK PEOPLE.

ELECTROPOISE UP TO THE PRESENT DATE.

Our readers will doubtless remember that I gave an extended *expose* of the Electropoise, in our issue for August 1, 1894, page 627. Some months before, I wrote it up with a caution, or warning, in our Medina paper, because agents were selling the bauble throughout our county, and because religious papers seemed to be its particular vehicle for advertising. Now, I want to confess to you that this matter has been on my mind a good deal. I felt greatly troubled to see our people, during these hard times, paying \$25.00 for a thing of no more value than a china nest-egg, and not a whit more scientific, let alone its power to cure the most difficult chronic disease; but I felt more troubled still to think that not a scientific paper—not a professor and not an electrician, so far as I knew, in the whole United States, had come forward to back me up. I wrote to the *Scientific American*, and its editor said that it was undoubtedly a fake, and that they had no faith in it; but they did not *print* a single word of warning. The boys in our machine-shop were studying electricity, and they backed me up, of course; but nobody seemed to care very much how much swindling

was done in that line. I have written to our religious papers that advertise the thing, calling them to order; but they do not seem to care, so long as they get their money; and, worst of all, men and women, who ought to know better, question my *right* to criticize. They suggested it was improbable that such prominent men would give the Electropoise such a testimonial if there were not something in it. Some of my good friends mildly suggested, too, that perhaps I did not know *quite* every thing, and may be I was not up to the times in the way of improvements. Well, a few days ago a woman was injured by an accident near our home. Mrs. Root took her in and cared for her until she was able to ride home. Before she went away, however, she said she had an Electropoise, and that it was a wonderful help. The poor woman was not able to talk very much, and so I did not get a chance to interview her; but Mrs. Root says her statement was something as follows: Before she had the Electropoise she was obliged to take great quantities of medicine in order to be up and get around. The agent who sold the thing, however, informed her that she must chop off all medicine entirely; the 'poise would not "work" where medicines were around. "Work," indeed! Well, she discarded all medicines of every sort, and confined herself to following Electropoise directions implicitly, and, strange to tell, she was very much better right away. Did you ever! And this reminds me that I want to ask you to read T. B. Terry's talk on medicines, on the next page. But now for the triumphant *expose* of the Electropoise. The following is taken from the *Western Christian Advocate*, of New York: A. I. R.

AN ELECTRO-MEDICAL FRAUD.

"*Electricity*," a scientific journal published in New York, in its issue of November 21, prints an *expose* of the "Electropoise," an extensively advertised panacea, with certificates of its effects from men in high places. It turns out, by scientific demonstration, to be the veriest cheat, achieving its magical healing through the imagination of its patrons. It claims to cure by "thermo-electric induction"—a conceit that has no scientific basis, there being no such thing known to electricians; to so polarize the body as to attract the oxygen to its surface, and diffuse it through the system. The expert affirms that "neither magnetic nor electric polarization has any effect upon the atmosphere, except to abstract from it the dust; that, if the body were polarized to a million volts, there would be no such attraction," while this "little joker" has but "one-thousandth of a volt." The proprietor alleged that the closed cylinder contained two rare metals no chemist could analyze, while there are no metals which can not be analyzed.

Electricity purchased an "Electropoise," and had its contents examined. It was found that the nickel-plated cylinder, three inches long and one inch in diameter, was filled with flowers of sulphur and graphite made into a paste and allowed to harden, which, when used, is placed in cold water to set up by moisture a chemical action, which is so small as to be insensible and capable of exerting no influence on the system whatever. In one end of the cylinder is fastened an ordinary flexible cord, the other being affixed to the metal clasp of a garter for attaching it to the wrist or ankle. Flowers of sulphur costs two cents a pound, and graphite ten cents. The cylinders can be made, in quantity, for ten cents each; the cord, two yards in length, can be had at retail for twenty-five cents; and the garter for five cents, making the whole cost forty-two cents. The 'poise is sold for \$25.

Another, a wall instrument, sold for \$50, consists of a walnut board, upon which are two multiple switches, each with six points. Two flexible cards and garters are attached, and the "polarizer" is suspended and dropped into a basin of water. Two patients can be treated at one time by each attaching a garter. One of the switches regulates the current by turning the lever to the desired point. The other switch is for disinfecting germs and destroying odors, which is electrically absurd.

The proprietor professes to have a twelve-page

type-written testimonial from the Smithsonian Institute, of its being "a scientific instrument of great value," which was proven false by correspondence with the office in Washington.

The business methods of the concern, imposing it on the public, include all the accessories of the confidence and green-goods game—the stool-pigeon, the capper, the bogus purchaser, and the office boy rushing in to borrow the only "Electropoise" on hand. *Electricity* calls on the police and postal authorities to investigate the swindle and arrest the swindlers. It says: "We denounce the 'Electropoise' an outrageous humbug, with knowledge that many intelligent people have testified to wonderful cures who rest under the suspicion of self-interest." It enumerates sixty diseases it infallibly cures, and names the *New York Sun*, the *North American Review*, and eight among the many prominent religious papers giving it space and indorsement.

The *expose* is scientific and thorough, and no candid mind can escape the conclusion that the device is void of merit, and that the "Electrolibration Company," is advisedly palming off on the afflicted a worthless nothing at an exorbitant cost to the purchaser.

The cheat ranks with the electric brushes, soles, and "Perkins Tractors," exposed by Dr. Oliver Wendell Holmes.

As a psychological imposture on the infirmities of cultured minds, it is the cutest fake of the age. We do our readers a practical service by foretelling any tempted to try this costly fraud from losing their money and execrating themselves for their credulity.

Now, friends, are you ready to give up? Is there any one among our readers who is prepared to defend Electropoise after the above *expose* thereof? I feel like saying, and I am going to say right out in print, May God be praised that we have such a scientific journal in our land as *Electricity*—one whose editors are willing to invest \$25.00 for the sake of showing up fraud and humbug! yes, even though religious journals indorse it, and United States senators, or their wives, give it the strongest kind of recommendation; yes, even though so-called *college professors*, and ministers of the gospel too, have lent their influence to help it along.

T. B. TERRY ON PATENT MEDICINES, ETC.

ALSO SOMETHING IN REGARD TO THE TREATMENT OF THE DISEASES OF DOMESTIC ANIMALS.

[The following is so much in line with the teachings of our own journal, and coming from such authority as T. B. Terry and the State Veterinarian of Missouri, we copy it entire from the *Practical Farmer* of Dec. 15.—ED.]

Before the opening hour for the Institute the other afternoon we saw a man get up on a box and collect a crowd around him, to whom he was trying to sell some so-called medicine. His audience was composed largely of farmers. Of course, he had his little game. The people were made to think that they would get their money back later on, that he was only advertising the medicine. And you ought to have seen the rush to get something for nothing. They seemed to believe that the man could pay his hotel-bills and traveling expenses, silk hat and all, just for a chance to give them something valuable. Well, they tumbled over each other in handing up their \$2 each, until \$60 or \$70 was taken from the crowd; and, owing to a "catch" in the promise, only one or two got any thing back, of course. I saw farmers without money borrow it to give to this man for something of which the best use they could possibly make was to smash at once. Now, there was in that crowd an agent for the *Practical Farmer*, who told me he had tried in vain to get a single farmer to give him \$1 for a copy for the rest of this year and during 1895. They all said times were so hard they could not afford it. This is a true picture, friends. My friend Abbott, President of the North American Bee-keepers' Association, was standing by me and watching the game. How can

we reach such men? The medicine-man is making money like every thing, and we have met him this year in many forms, and more than once he has cut down our attendance.

Dr. Turner, State Veterinarian in Missouri, was asked at one Institute about hog cholera medicine, whether it did any good or not. The doctor is a fine young man, and one of my particular friends, and I was a little anxious about the stand he might take on this question. But he came out boldly and squarely. He said: "The virtue lies chiefly in the directions, which come with the medicine, which you follow. You are told to take at once all well hogs away from the sick ones and put them in a new place, and not down stream from the old place, and to leave the sick ones right there, and to burn the dead ones, and be careful about tracking any soil from the ground where the sick ones are to the other field (feed well ones first), etc., and these directions carefully followed will stop an outbreak of hog cholera very soon." The doctor was asked if filthy pens, an exclusive corn ration, etc., could cause cholera. He replied in substance that the vitality of the animals might be weakened in this way, and thus make them more ready for disease, but that cholera could start only when the hogs came in contact with the germs that produce the disease, and when they were entirely removed from them the disease would end. There is no question about the advisability of taking good care of the hogs, and feeding them properly, as a preventive measure.

Dr. Ramsey, Assistant State Veterinarian, is also an earnest, sensible, practical young man. I am afraid much of his talk would not be relished by so-called "horse doctors." When telling farmers how to treat a horse that had the colic, for example, he said: "Go to some old lady and ask her what she would do for you if you had the colic, and treat your horse in the same way. Cover him up warmly, let him lie quietly, put cloths on the abdomen, wrung out of hot water, or put on mustard, and, perhaps, give some ginger tea." He said, in substance, that a horse with this disease is almost certain to get better soon. And when you dose him with all sorts of nauseous medicines, and take the horse out and ride him around, you are doing a cruel thing; and if the animal gets better, it is in spite of your treatment, not because of it. I suppose I enjoyed this talk more than some would, because I never did believe in dosing animals or human beings to any such extent as the common custom is. Our best doctors now give very little medicine, except to patients whose imagination it is necessary to work on, and then they often give bread pills, or some such harmless thing. In fact, there is one great doctor in the West who is performing the most wonderful cures without giving any medicine whatever. We have not a bottle of medicine in our home, and have never had the tenth part of the sickness that there was in my boyhood home, where dosing was about as common as eating.

THE DIVINING ROD, OR SWITCH, FOR FINDING WATER.

TELLING WHERE TO DIG WELLS, BY MEANS OF A WILLOW OR HAZEL SWITCH.

This is another humbug that needs to be thoroughly exposed; and such good papers as the *Country Gentleman* and *Practical Farmer* have published communications defending the institution, without any editorial or comment. Perhaps they proposed to let their correspondents discuss the matter. But I protest against letting such nonsense go unreprieved, even in a single issue. The writers of both the articles in question seem to be men of sense, and should know better. Look here, friends. There are but three imponderable agents known to science—heat, light, and electricity. One writer says it is no more strange than that the magnetic needles should point toward the north pole, about 3200 miles away. That may be true; but in the first place it is *not* the north pole that attracts the magnetic needle. And, again, the magnetic

needle will not point to a lump of ore away down in the ground. If it were true, and if the willow switch or hazel rod did point to veins of water many feet below, then we should have a new imponderable agent now unknown to science. Scientific men would rush to investigate, as they would hunt for a new planet or a new comet. It is a little strange that scientific investigation has paid so little attention to this matter. One experiment station took it up some years ago. Very likely it was our Ohio station. They showed up the fraud in very short meter by demanding that the water-witch should prophesy where water could be found, with his eyes *blindfolded*. The one called was an old gentleman who had located wells almost all his life. He was unquestionably honest and sincere in the matter, for he did the work for little or nothing. When the scientific experimenters, however, asked him if he could do it just as well blindfolded he replied that he could, without question; but when placed upon trial he entirely failed to set any stake where he had previously set them when he could use his eyes. The old man was honest enough to give up, and submit that he had probably not only deluded others, but had deluded himself all his life.

Now, you need not rush forward and try to "snow me under" with your testimonials or with your faith. If any of you have got a water-witch, north, south, east, or west, who can locate wells by the twisting of a switch, and who will locate them with his eyes blindfolded just as well as with his eyes open, just let me know about it, and I will make a trip expressly to see him, and pay you all for your time and trouble besides. Will the experiment stations of the different States help to get rid of this foolish, stupid legend of the Dark Ages? Make tests as I have outlined above, then send out bulletins, and have the matter published in the agricultural papers. Why, dear friends, just consider a moment. People have carried water long distances from wells all their lives because a water-witch drove a stake in that spot; and, again, one good friend of mine, I am told, has a well right square in front of his front door, because the water-witch told him he could not get water if he dug anywhere else. Perhaps a majority of the "witches" are honest. It simply illustrates how prone is humanity to get notions and to fall into ruts. Electropoise and patent medicines, spoken of in other pages in this issue, attest this. Why, it is just really enough to make a good man weep to see how people waste money and health by letting their imagination lead them astray. As a rule, men who put down wells by machinery, and do a large business, will tell you that the witching amounts to *nothing at all*. The man who put down our well where the big windmill now stands said he always drilled wherever people directed him to, and that a great many times they had a water-witch set the stake; but he said there was no question but the whole thing was a humbug, and, furthermore, that, when the matter was submitted to him, he always directed people to have their wells where it would be most convenient, and that the chances were certainly just as favorable for striking a heavy vein of water in one place as in another. They had never failed in getting plenty of water, providing they went *deep* enough. If somebody would dig for water where the witch says it can *not* be found, he would find plenty of it, with hardly an exception; for it is about as hard to dig far into the earth *without* finding a vein of water as it is to cut a finger without finding a vein of blood. That would prove the fallacy of at least half his claims, and with that would go the other half.



SANITARY DRAINAGE, ETC.

We are told in our book, "Tile Drainage," that the roots of trees never go into the tiles unless said tiles carry water when the ground generally is lacking in moisture. This condition would be secured only where the tiles carried water from springs, or slops and sewage from the house, cellar, etc. In digging up some tiles in Ernest's lawn we found the roots of different ornamental trees had got into the tiles, and spread out, making quite bushy roots. The reason was, these tiles carried drainage from the kitchen. Now, I have for some time been thinking we might take advantage of this fact. Water-closets are fast becoming desirable fixtures, and they are especially preferable to the dry-dust system where the internal water cure is to be used. Our books and periodicals on sanitary drainage, I believe, are recommending cesspools. Now, I do not want a cesspool anywhere on my premises. We put a water-closet, about a year ago, in our bath-room. A cast-iron pipe carries the sewage outside of the building; then vitrified sewer-pipe, with cemented joints, take it several rods down into the orchard. At this point the sewer-pipe is conducted into large-sized drain-tiles. We used first eight-inch tile, increasing to ten. As the ground slopes away from the house, there is no difficulty in getting a gradual fall, and at the same time keeping these large tiles within 20 or 24 inches of the surface of the ground through the orchard. By the way, these *large* drain tiles are some damaged ones that I got at the factory for a very small sum. They are cracked and warped from being overburned. These were just the thing, you see, to let the roots of the apple-trees, or any other kind of roots that take a notion, get through inside of the tiles. A good many shook their heads, and said it would not work. But how can it fail to work? The water used in flushing scatters the solid matter the whole length of these large tiles, and dissolves more or less of it every time it goes through. During our extreme drouth there was a dense growth of grass and clover over the large tiles, especially toward the lower end, but not the faintest smell could ever be perceived—of *course not*, for the growing plants took hold of it at once and converted it into something valuable.

We have just finished to-day, Dec. 22, putting a similar one for Ernest's home down through some rows of raspberries, currants, strawberries, pie-plant, etc. See cut on page 517, 1894. You see, the whole thing is automatic. The essentials are, to find a gentle slope in some direction away from the house; then the length of the line of tiles, as well as the size, will have to depend somewhat on the size of your family. Perhaps I should have added that the ground in our orchard and under the berry-plants is thoroughly tile-trained. These large tiles for sewage run right over the tile drains, the latter constantly disposing of the surplus water. There you have it—sewage taken away without any handling, and without ever seeing it; and you also have *sub-irrigation* and *liquid manure* combined. Of course, perfectly working sewer-traps are a necessity; and experts in the matter say there should also be a standpipe just beyond the trap, to carry any surplus gases up through the roof of your building. This prevents gases of any kind from forcing their way through the trap, as we are told they some-

times do during hot weather when fermentation is going on.



THE CRAIG SEEDLING POTATO.

I confess that my statement in regard to this potato has been received with more favor than I expected. A good many orders are made for pounds by mail, and quite a few for pecks, half-bushels, etc., by express, and some for barrels in the spring. Now permit me to make a suggestion. At the present value of this potato—\$5.00 a bushel—it can be grown under glass at a profit. I have raised potatoes under sashes more or less for several years back. They are one of the easiest plants to manage I ever had anything to do with, with this single exception—you must not let them freeze. But even if they do freeze, it does less damage than with any other plant I know of—that is, any other tender plant. If you scorch a tomato it is pretty apt to give up and die; but you may freeze the potato-tops clear down to the ground, and they will, as a rule, get right up and grow almost as well as if you had simply cut the tops off. Under glass, however, the ground seldom freezes. The principal damage is done to the tops. Well, I have had very good success in growing potatoes under glass. The only trouble is, they rarely sell for enough in our locality to pay. For instance, we rarely get more than 40 cts. a peck—sometimes 50; and if we raise a peck under each 3x6 ft. sash it gives us only 50 cts. for the use of the sash; whereas other crops give us from one to two dollars, and all the way up. Now, if you get a peck of potatoes under sash—and I think it can be easily done—this new Craig seedling is worth at present writing \$1.75 per peck, and this would pay very well. Furthermore, if you plant them now you could get potatoes ready to plant again in May or June. My impression is, however, that this new Craig potato will keep right on growing from now until next September or October; therefore you need not take the trouble to dig the potatoes and plant them again, but simply divide the hills. You can take a hill of potatoes and tear it to pieces, plant out the pieces like cabbage-plants, and even if some of the pieces have only a little root and top, they will grow just as readily as cabbage-plants.

If you have the ground very rich, and see that they do not lack for water, it is the easiest thing in the world to propagate potatoes from cuttings. T. B. Terry has told us what he got from a single barrel of potatoes (Freemans) when they were very valuable. Now I propose to tell you what I can do with a single barrel of Craigs by commencing some time in January. Of course, a greenhouse is much nicer than hot-beds or cold-frames; but the cold-frames will come in very nicely a little later in the season. If you have not got a greenhouse, nor any sash, you can work with a single pound by putting them into pots or boxes in the window. Manage just as you do with house-plants. Potatoes will grow pretty fairly, even if they do not have very much light. You have all seen them grow in dark cellars. Well, you can get them started with very little light, and keep on dividing, multiplying them until it is time to put them outdoors. The cotton-cloth beds, described in the tomato-book, will keep off a pretty severe freeze, say all in March and April.

Now, then, who among our readers will make the most pounds of Craig potatoes from a single pound between now and next October?

We clip the following from a recent number of the *Rural New-Yorker*, telling what Prof. Massey did a good many years ago:

In 1869, I propagated a whole greenhouse full of Early Rose in pots, and planted an acre of land from 35 pounds of seed which I had raised from a pound purchased from Mr. Bliss. The whole product was sold for seed, and I grew some of them myself. I have never had any Early Rose of late years equal to them. The plants I grew in pots, from cuttings under glass, made strong, vigorous plants, with a single stem, and rather exceeded in vigor any from cut potatoes being in four-inch pots of rich potting compost. All had set little tubers on top of the pots in the rank shade of the foliage, standing closely on the greenhouse benches. They were set out with unbroken balls of earth, and covered a little deeper. The tubers had a decided start, and grew at a more favorable season than if

they had been planted from sets outside. They were, in fact, mature before hot weather set in, and the seed potatoes raised from them in the fall kept solid, and made the finest of seed for the next season.

If I wanted to bring a new sort to the highest perfection for seed, I would propagate it in this way: get the tubers ripe in May, and then grow a good crop of seed from them in the fall. This seed would then give the type in perfection.

W. F. MASSEY.

A pound of the new potatoes to start with will cost you only 25 cts. See advertisement of friend Craig in another column. You can send the money to us or to him, as you choose.

CEMENT-COATED NAILS.

We are now using in almost all our work what are known as cement-coated nails. They are the ordinary wire nails with a thin coat of brown substance. The friction of the nail on the wood in driving softens this coating and makes it adhere to the wood while also adhering to the nail. This makes the nail hold better than any thing heretofore known. If you have ever tried to draw a rusty nail you know something how these nails hold. If you wish to investigate them we will mail a sample package of various sizes for 5 cents to pay postage.

We have been using these nails for several years, but have not offered them for sale before because we have not until recently been able to get most of the smaller and special nails used in our work with this coating. We have prevailed on the factory who control this coating process by patent, to coat our fine nails down to $\frac{1}{8}$ inch, and also casing nails used in nailing hives. The four smallest sizes in the following list will be smooth nails. We still have some stock of other sizes smooth which we will send while they last unless you specify cement-coated nails in your order. These cement nails hold so much better that a smaller nail can be used, and have greater holding power.

For instance, instead of $\frac{1}{4}$ -inch smooth nails we now use 2d fine or one-inch nails to nail up brood-frames and section-holders, and the work is stronger. On account of this greater holding power the patentees of the coating process adopted the plan of putting the same number of nails in a keg as the ordinary smooth nails will average, and make them a little scant in length and size so that a keg will be short in weight from 10 to 15 lbs., although having the same number of nails, and selling for the same price per keg. This plan made it difficult to fix a price by the pound, because kegs were not of uniform weight. Full-weight kegs of cement-coated nails cost more than the ordinary smooth nails.

PRICE LIST OF FINE FLAT-HEAD WIRE NAILS, CEMENT-COATED, EXCEPT FIRST FOUR.

L'gth.	Wire Gauge.	No. in 1 lb.	Wt. of 5c pkg.	Price of 1 lb.	10 lbs.	100 lbs.
$\frac{1}{4}$ in.	No. 20	17,500	2 oz.	.25	\$2.00	\$17.00
$\frac{3}{8}$ "	" 20	10,000	4 oz.	.20	1.50	12.00
$\frac{1}{2}$ "	" 20	7,500	4 oz.	.15	1.25	10.00
$\frac{3}{8}$ "	" 19	4,200	4 oz.	.12	1.00	8.00
$\frac{1}{2}$ "	" 18	2,700	8 oz.	.10	.80	7.00
$\frac{3}{4}$ "	" 18	2,350	8 oz.	.10	.86	6.70
1 "	" 18	2,000	8 oz.	.10	.82	6.40
$1\frac{1}{4}$ "	" 17	1,200	8 oz.	.10	.80	6.10

PRICE LIST OF STANDARD (D) CEMENT-COATED WIRE NAILS.

Style.	Length.	Wire gauge.	No. nails in 1 lb.	Price of 1 lb.	10	100
2d fine	1 in.	No. 17	1440	8	60	\$5.00
4d box	$1\frac{1}{2}$ "	" 15 $\frac{1}{2}$	550	6	50	4 10
5d "	$1\frac{1}{4}$ "	" 14 $\frac{1}{2}$	366	5	45	3 80
6d "	2 "	" 13	250	5	40	3 50
7d "	$2\frac{1}{4}$ "	" 13	236	5	40	3 50
8d "	$2\frac{1}{2}$ "	" 12	157	5	40	3 20
9d "	$2\frac{3}{4}$ "	" 12	130	5	40	3 20
10d "	3 "	" 11	107	5	40	3 00
4d casing	$1\frac{1}{2}$ "	" 15	550	6	50	4 10
6d "	2 "	" 13	250	5	40	3 50
8d "	$2\frac{1}{2}$ "	" 12	157	5	40	3 20
3d common	$1\frac{1}{4}$ "	" 15	615	6	50	4 00
4d "	$1\frac{1}{2}$ "	" 13	322	5	40	3 50
5d "	$1\frac{3}{4}$ "	" 12 $\frac{1}{2}$	254	5	40	3 50
6d "	2 "	" 12	200	4	35	3 20
7d "	$2\frac{1}{4}$ "	" 11 $\frac{1}{2}$	154	4	35	3 20
8d "	$2\frac{1}{2}$ "	" 10 $\frac{1}{2}$	116	4	35	3 00
10d "	3 "	" 9 $\frac{1}{2}$	74	4	30	2 80
16d "	$3\frac{1}{2}$ "	" 8	46	4	30	2 70
20d "	4 "	" 6	29	4	30	2 60

The above table of prices is based on full-

weight kegs. Should we fill your order for full kegs with nails put up by count instead of by weight, the price of these by the keg will be about 10 per cent less. We have adopted for the coming season the plan of including with all goods sent out in the flat the right size and number of nails required to nail them, which we are sure will be a great convenience to our customers. We will, of course, use these cement-coated nails wherever we can. We are prepared with a stock of nearly a carload, and can get more as needed, though we have to order a month or two ahead of our needs to be sure to get them in time, because they are put up especially for us, and not generally offered for sale.

BINGHAM SMOKERS REDUCED.

The manufacturer announces reduced prices for this year in another column. We are, of course, prepared to supply you with his latest smokers at the new prices, and the new edition of the catalog will give the revised prices.

ROOT'S EXTRA POLISHED SECTIONS.

These are rapidly making their way into well-deserved favor among bee-keepers and dealers. We do not believe they are surpassed by any made anywhere, it is, indeed, they are equalled. We are almost daily in receipt of very flattering words concerning their excellent finish, color, and workmanship. We have booked a number of quite large orders, enough to keep us running steadily for about two months. We shall be pleased to hear from those dealers who have not yet made their arrangements for this year's supply. Samples mailed free to those interested.

OUR CATALOG FOR 1895.

From present outlook, our new catalog will hardly be ready to mail before the first of February. It is being entirely revised, re-arranged, and largely re-written, all of which takes time, when done in connection with our other work. It will not be necessary for our GLEANINGS subscribers to send a request for the new catalog, as a copy will be mailed to each as soon as ready, also to our list of customers and applicants, as fast as we can get them ready. If you can not wait for the new catalog, send us a list of the goods you want, and we will name our best prices.

A HIGH-GRADE BICYCLE CHEAP.

Desiring to ride the latest 1895 bicycle, I will sell my \$125 Victor Flyer, of '94 pattern, for \$75.00 in cash, or for \$80.00 worth of wax or first-class white honey, at market prices. This machine is practically as good as new, and on the rear wheel a new tire has been put. It has a full set of tools, extra inner tube for tires, rubber mud-guards. Weighs, stripped, or as I ride it, 29 lbs. Catalog giving full description will be sent if desired. To take advantage of this offer you will need to write quick, as this is a rare chance to convert your wax or honey into a bicycle. But don't send either till you write, giving particulars. E. R. ROOT.

COMB FOUNDATION.

We call attention again to the advance in list price announced in last number, made necessary by the advancing price of beeswax. This advance is adopted by all the leading manufacturers. Notice, also, we are paying a much better price for your wax, 26c. cash, 29 in trade, delivered here, for average, and extra for extra quality. In this connection we ask all of our readers not familiar with the excellent quality of our comb foundation, as now made, to send a request for free samples. Our output for 1894 was fully one-fourth more than for the year previous, and amounts to about 39 tons, notwithstanding the season was below the average generally.

SUGAR-MAKERS' SUPPLIES.

We call the attention of those of our readers interested in maple-sugar making, to our announcement in another column of sugar-makers' supplies, where we quote reduced prices all the way through the list.

TWO AND FIVE GALLON SQUARE CANS.

The reduction in the tariff on tin plate enables us to offer lower prices on square cans, one and five gallon, than we have made heretofore. We have also made arrangements to fill orders for these cans from New Orleans, as well as St. Louis, when more

convenient. You will find the reduced prices in the list of sugar-makers' supplies. Will quote large lots on application.

THE BUNCH SWEET POTATO, OR VINELESS YAM.

Mr. Wm. E. Price, of Eufaula, Ala., has 250 bushels of the above potatoes for sale. As he is in need of money to raise a mortgage, I am told he will sell them at a very low figure. These potatoes have been pretty thoroughly tested for a year or two back, and I believe they have generally given excellent satisfaction. They do well as far north as Michigan, and I understand good crops have been raised where the potatoes were not put out till July. In the South they plant them as late as August; but where put out so late, the potatoes are apt to be small, just as we want them for seed. For further particulars, address as above. A. I. ROOT.

COMFORT FOOT-STOVES.

We found, after we began advertising these this season, that the manufacturers are making much lower prices than last year, especially on the fuel. We therefore reduce our prices accordingly. The new prices are as follows:

Hand-stove, with 2 doz. fuel, 40c. each, \$3.50 per doz.

Small foot-stove, with 25 fuel, \$1.75 each; \$15.00 per doz.

Large foot-stove, with 25 fuel, \$2.00 each; \$16.50 per doz.

Fuel for hand-stove, 2c. for 2 doz.; \$1.00 per gross.

Fuel for foot-stove, \$1.00 per box of 50 sticks, \$9.00 per doz. boxes.

Hand-stove, with fuel, mailed for 10 cents extra.

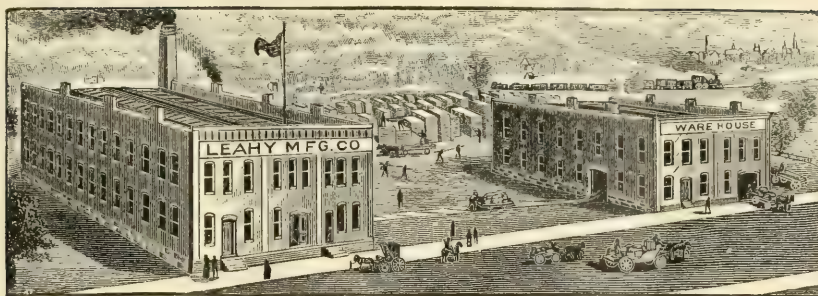
We have had very flattering testimonials from some of those who bought stoves last winter and used them with great satisfaction and comfort. See advertisement or special circular for further particulars.

SPECIAL PREMIUMS.

Quite a number of our readers are abusing their privileges in regard to special-premium offers, no doubt through a misunderstanding of our offers. For instance, we offered, during last month, to send the *Farm Journal* free to every reader who renewed in advance, and claimed it. We have also offered the Gault raspberry (only one to each subscriber) at 25 cents to those who renew in advance, and we have offered a paper of March's cabbage seed to those who renew in advance. Then we offer a special clubbing price for GLEANINGS with other papers. Now, it is your option to take your choice from these special-premium offers; but it was not our intention that the same person could take advantage of all of them on the same subscription, as some seem to have the idea they can do. When we offer a special premium for renewal in advance, it means that you must pay the full subscription price of \$1.00 before the expiration of the old subscription, or before the new begins, to secure that premium; and if we offer several such special premiums you can take advantage of but one, on the same subscription, and your request for special premium must be made at the same time, not some time afterward. From now on, for this month, those who would have the *Farm Journal* with GLEANINGS must pay \$1.10 for the two, and then it must be a paid-in-advance subscription. If you are in arrears, all arrears must be paid, and \$1.10 sent in addition for the year in advance, for both papers. The paper of March's cabbage seed may be claimed in addition to any other one special premium, or in connection with GLEANINGS, clubbed with other papers. The *Farm Journal* may be added to any of the clubbing offers for 20 cents extra, or to any of the special-premium offers for same amount.

MAPLE-SUGAR SUPPLIES.

The time is at hand when those who produce the delicious sweets from the sugar maple must be getting ready. For the best results you must have good clean apparatus of the most approved type, and you really can not afford not to read Prof. Cook's book, "Maple Sugar and the Sugar-bush," which we furnish at 35c, or we will give a copy free to all those who buy sugar-makers' supplies of us to the amount of \$10.00 or more. We do not sell evaporators, but we think we can do you some good on spouts, pails, covers, and cans. We have received a carload of these from the factory, and they are made of American tin-plate. The plates are tinned



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GOOD SUPPLIES and LOW PRICES, Our Motto.
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"The Leading American Seed Catalogue."
 A handsome book of 174 pages with many **new features** for 1895—hundreds of illustrations, pictures painted from nature—it tells all about the **BEST SEEDS** that grow, including rare novelties that cannot be had elsewhere. Any seed planter is welcome to a copy **FREE.** Send your address to-day on a postal.
W. ATLEE BURPEE & CO., Seed Growers, PHILADELPHIA.

BEE-KEEPERS' SUPPLIES FOR 1895.

Such as Dovetailed Hives, Sections, Comb Foundation, Extractors, and every thing else used by a bee-keeper. All late improved goods. Immense stock. Goods sold at wholesale and retail. Write for our

DISCOUNTS FOR EARLY ORDERS.

Alsike clover and Japanese buckwheat furnished at lowest market price.

Address **JOSEPH NYSEWANDER, Des Moines, Iowa.**

REID'S FRUIT TREES, SMALL FRUITS, VINES, ROSES, ORNAMENTALS.

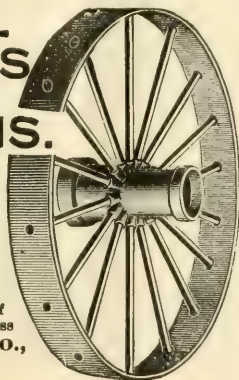
All the best new and old varieties. New Fruits a specialty. Send for complete descriptive Catalogue. Tells you how to buy direct and save one-half.

TIMBRELL Strawberry. ELDORADO Blackberry.

"They surpass all others," say E. S. Carman, of *Rural New Yorker*, and H. E. Vandeman, U.S. Dept. Write at once. **REID'S NURSERIES, Bridgeport, Ohio.**

METAL WHEELS for your WAGONS.

Any size you want, 20 to 56 in. high. Tires 1 to 8 in. wide—hubs to fit any axle. Saves cost many times in a season to have set of low wheels to fit your wagon for hauling grain, fodder, manure, hogs, &c. No resetting of wheels. Cat'll'g free. Address
EMPIRE MFG. CO.,
 Quincy, Ill.



B 4 U Buy Seeds or Plants,

Send for my Annual Catalog.

It is neatly gotten up; no old stereotyped matter about it; nothing sensational. The Best Varieties **truthfully described and honestly priced.** A. I. Root says, "I believe I have read every catalog you have put out clear through, and I wish all seedsmen would tell us their experience with different varieties as frankly as you do." True Prizetaker onion seed and plants a specialty. Vegetable and small-fruit plants of all kinds, trees, and supplies for gardeners. Send for free catalog at once, or send 10c for catalog, a pkt. of a new smooth very early tomato, a pkt. of the best new lettuce, a pkt. of true Prizetaker onion, and a pkt. of choice flower seeds, all for 10 cents.

Christian Weckesser, Niagara Falls, N. Y.

HONEY COLUMN

CITY MARKETS.

KANSAS CITY.—*Honey.*—The stock of comb honey is large; market well supplied. Fancy white 1-lb. combs, 15; amber, 12@13. Receipts of extracted, light; white, 7; amber, 5½@6; southern, 4½@5. Beeswax, 22.
HAMLIN & BEARSS,
 Jan. 7. Kansas City, Mo.

CINCINNATI.—*Honey.*—Demand is very quiet since the holidays, and prices are the same. Comb honey brings 14@16 for best white, and extracted 4@7 on arrival. There is a good demand for beeswax at 23@28 for good to choice yellow.
CHAS. F. MUTH & SON,
 Jan. 7. Cincinnati, O.

DETROIT.—*Honey.*—Sales some slower since holidays. Stock not large. Best white comb, 14@15; dark lots, 10@13; extracted, 6½@7. Beeswax, 26@27.
M. H. HUNT,
 Jan. 7. Bell Branch, Mich.

BUFFALO.—*Honey.*—In the honey market there is very little doing. Fancy is moving off in a moderate way at 13@14; choice, 11@12; buckwheat, 8@9. Extracted dull; we would not advise shipments of any honey at present.
BATTERSON & CO.,
 Jan. 7. Buffalo, N. Y.

KANSAS CITY.—*Honey.*—The demand for both comb and extracted is light; supply good. We quote No. 1 white comb, 14@15; No. 2, 12@13; No. 1 amber, 13; No. 2, 10@11. Extracted, white, 6@6½; amber, 5@5½; dark, 4½. Beeswax, 22@25.
C. C. CLEMONS & CO.,
 Jan. 7. Kansas City, Mo.

ALBANY.—*Honey.* The honey market is very quiet, as is generally the case during the first of the year. The demand for extracted usually commences about the middle of January. The stock of comb honey on hand is not large, especially clover; but the supply of extracted is ample. We quote clover, 12@13; buckwheat and mixed, 9@10. Extracted, 5@7.
CHAS. McCULLOCH & CO.,
 Jan. 8. Albany, N. Y.

CLEVELAND. *Honey.* Our honey market has not been as firm as anticipated, and it has not been in very great demand for the past few days. No. 1 white is selling at 14@15; No. 2, 11@12. No. 1 white extracted, 6. Beeswax is in good demand at 26.
WILLIAMS BROS.,
 Jan. 5. 80 & 82 Broadway, Cleveland, O.

ST. LOUIS.—*Honey.*—The trade is quiet on all grades of comb and extracted. We quote clover comb, 16; amber, 12½@14; extracted in cans, 5½@6; in barrels, 4@4½. Prime beeswax, 28.
D. G. TUTT GROCER CO.,
 Jan. 7. St. Louis, Mo.

NEW YORK.—*Honey.*—The demand for comb honey has been very light of late, and has now almost dwindled down to nothing. The supply has been larger than any year before, and there is a large stock on the market. In order to move it in round lots, it will be necessary to make concessions from the ruling quotations. Buckwheat and off grades are almost unsalable. We quote: Fancy white 1-lbs., 12@13; off grades, 10@11; buckwheat, 9. The demand for extracted continues very light, with plenty of stock on the market and arriving. We quote: White clover and basswood, 6; buckwheat, 5@5½; southern, per gal., 50@55. Beeswax is in good demand, and finds ready sale on arrival at 30@31.
HILDBRETH BROS. & SEGELKEN,
 Jan. 9. 28 & 30 Broadway, New York.

BOSTON. *Honey.* Our honey market remains about as it has been, with light demand. Comb honey, 14c; extracted, 5@6c.
E. E. BLAKE & CO.,
 Jan. 10. Boston, Mass.

CHICAGO.—*Honey.*—Honey is selling but slowly at this season, but we expect an increase in demand within the next fortnight. Choice white sells at 14c; dark grades, 9@12. White extracted, 6@7; dark, 5@6. Beeswax, 27c.
R. A. BURNETT & CO.,
 Jan. 12. 183 So. Water St., Chicago, Ill.

SAN FRANCISCO.—*Honey.*—White extracted honey, 6@6½c; light amber honey, 5@5½; 1-lb. frame comb honey, white, 11c. Beeswax is scarce at 26@27c.
SCHACHT, LEMCKE & STEINER,
 Jan. 10. San Francisco, Cal.

DENVER.—*Honey.*—Our market seems to remain the same. We quote No. 1 white comb honey in 1-lb. sections, put up in 24-lb. cases, suitable for putting in cartons, 11@12 cts.; No. 2, in cases, 10. No. 1 extracted, in 60-lb. cans, 6@7c. Demand for extracted honey is quiet, with a good supply on the market. Beeswax, 22@25 per lb. We could handle to advantage a quantity of 1-lb. comb honey.
R. K. & J. C. FRISBEE,
 Jan. 9. Denver, Col.

Closing out balance of my fine extracted basswood honey at 7c f. o. b. Who is not supplied?
ELIAS FOX, Hillsboro, Wis.

FOR SALE.—Honey, in 60-lb. cans, 6c; 52-gal. barrels, at 5c. Send for sample.
W. C. GATHRIGHT, Cameron, Tex.

We yet have extracted alfalfa at \$7.80 per box of 120 lbs.
AIKIN BROS., Loveland, Colo.

FOR SALE.—4 bbls. of No. 1 extracted basswood honey. Weight, 562, 552, 336, and 275 lbs. net, at 6½c per lb. f. o. b. here.
E. D. TOWNSEND,
 Carson City, Mich.

ALFALFA HONEY, very white, thick, and rich. Two 60-lb. cans at 7c. Same, partly from cleome (tinted), 6c. Samples, 8c.
OLIVER FOSTER, Las Animas, Col.

Having secured a fine quantity of buckwheat extracted honey I now offer it in lots to suit purchaser, 210-lb. kegs at 5½c, f. o. b.; also 2000 lbs. of basswood and clover.
W. LAMAR COGGSHALL,
 eitf West Groton, Tompkins Co., N. Y.

HONEY FOR SALE.

I have about 3000 lbs. A No. 1 fall honey, three distinct flavors—Spanish needle (smirtnweed or hearts-ease), and aster, 7c per lb., f. o. b. Sample free.
 Address **E. T. FLANAGAN, Belleville, Illinois.**

CHAS. ISRAEL & BROS., 110 Hudson St., N. Y.

WHOLESALE
DEALERS &
COMMISSION
MERCHANTS.
Established
1875.

HONEY
—AND—
BEESWAX.

LIBERAL
ADVANCES
MADE
ON
CONSIGN-
MENTS.

BUFFALO, N. Y. Unsurpassed Honey Market
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 187fdb and Prompt

Well, Well!

Jennie Atchley has erected a new factory, new engine and boiler, and has the only steam bee-hive factory in South Texas. Makes any and all kinds of hives at the lowest prices. Also furnishes A. I. Root's goods—Dovetailed hives, foundation, etc. Send me your orders, and see how quickly and accurately I can fill them. See my queen ad't on page 42. I am in a position to sell and ship bees by carload lots. Send for price list.

JENNIE ATCHLEY, Beeville, Bee Co., Texas.

Save Freight! Buy **Root's** goods at their prices, near home. Catalog ready Feb. 1. Write for prices on what you need, at once.
John Nebel & Son, High Hill, Mo.

FOR SALE.—Barnes Improved saw, \$20; Barnes O. S. foot-power saw, saws, and cutter-heads, \$7.00; 1½ horse-power engine (no boiler) \$15; Remington H. pattern rifle, 38-40 cal., reloading tools, etc., \$12.
ROBERT B. GEDYE, La Salle, Ill.

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Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must say you want your ad in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange a 200-egg improved Excelsior incubator complete, in A 1 condition, costing \$25.00, for best offer of 1½-story Dove-tailed hives complete for comb honey, or other bee-keepers' supplies. **FRANK LACEY, Danbury, Conn.**

WANTED.—Two or three hundred colonies of bees to run on shares for comb or extracted honey the coming season, or to take charge of as apiarist. Reference, **W. L. Coggeshall, West Groton, N. Y.** **RUSSELL T. STINNETT, Bells, Va.**

WANTED.—To exchange for any thing useful fox-hound pups, Bull terriers, butchers' tools, bone-mill, and White Holland turkey gobbler. Write at once, as this will not appear again. **ELIAS FOX, Hillsboro, Wis.**

WANTED.—To exchange one-piece-section machine, steel feed-grinder (½ ton per hour), 8 H. P. engine, 25 ft. 8-inch rubber belt, for brood fdn. or Hoffman frames with comb wired. **A. D. D. WOOD, Lansing, Mich.**

WANTED.—To exchange a good heavy 24-in. planer, a good cut-off saw-table a queen-age boring-machine, a Novice honey-extractor (new), a Pelham foundation-mill, and a lot of supplies. What have you to trade? **A. A. WEAVER, Warrensburg, Mo.**

WANTED.—To exchange rabbit-hound pups (English Beagle) for Winchester rifle or offers. Choice stock and low prices. **D. S. HALL, So. Cabot, Vt.**

WANTED.—A good Winchester or a Colt's repeating-rifle, from 32 to 38 caliber, for which I will exchange first-class sections, foundation, or bushel boxes. Circular and price list free, and free samples of sections or foundation if called for. Address **O. H. TOWNSEND, Alamo, Kalamazoo Co., Mich.**

WANTED.—To exchange Cuthbert or Marlborough raspberry-plants for beeswax, honey, or offers. **C. G. MARSH, Belden, N. Y.**

WANTED.—To exchange 1 span of large mules; also wagon, harness, and mares, for 200 colonies of bees. **BERT W. HOPPER, Garden City, Kas.**

WANTED.—Position in an apiary, by a young man of experience. Florida preferred. Write to me at once. Who will give me a chance? **MARION H. GILMER, 607 Louisiana St., Station B, Richmond, Va.**

WANTED.—By young man, position in large apiary. Do not use tobacco or liquor; 8 years on a garden, 3 on a dairy farm; accustomed to bees. **CARE BOX 382, Hamburg, Erie Co., N. Y.**

WANTED.—Offers on a new 20-egg Noxall incubator at \$15. **R. C. AIKIN, Loveland, Colo.**

WANTED.—To exchange supplies and other goods for honey. **O. H. HYATT, Shenandoah, Iowa, 20tf**

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample. **J. A. GREEN, Ottawa, Ill.**

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation. **ANTHONY OPP, Helena, Ark.**

WANTED.—To exchange pure St. Bernard pups, from registered stock. Will exchange for any thing useful. Would like a portrait-lens. Address with stamp. **SCOTT BRILLHART, Millwood, Knox Co., O.**

WANTED.—For spring planting, apple, quince, currants, gooseberry, strawberry, in exchange for golden queens, in June. **J. F. MICHAEL, Greenville, O.**

WANTED.—To exchange a Simplex 160-egg incubator and brooder combined, used 2 settings, for 150 lbs. of light or 175 lbs. of buckwheat extracted honey, in tin cans. **J. T. VAN PETTEN, Linn, Kansas.**

Florida and ALL Southern Bee-keepers,

Do you know that the freight rates (by water) are one half less from *here*, than from any place you can obtain a full line of supplies.

Rate on bee-hive material, to

Jacksonville, Fla., 18c per 100.

Palatka, " 34c "

Daytona, " 46c "

Cedar Keys, " 55c "

New circular upon application.

I. J. STRINGHAM, 105 Park Place, N. Y.

420 Lbs. Average

Is what my bees gave that I moved to the mango-grove; those at home, 300 lbs. each; *5-banded bees, too*. Queens, bred for business from this stock will be sent in 1895 for \$1.00 each until May; per doz., \$8.00. Circular free.

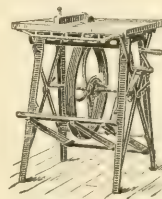
J. B. CASE, Port Orange, Fla.

Fruit Plants.

Where to buy them at wholesale prices. Send postal card for descriptive and wholesale catalogue of all of the leading varieties of **Strawberries, Raspberries, blackberries, Currants, Gooseberries, Grapes, and Potatoes.**

EZRA G. SMITH, Manchester, Ont. Co., N. Y.

☞ In responding to this advertisement mention GLEANINGS



Read what **J. I. PARENT, of CHARLTON, N. Y.**, says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of beehives, etc., to make, and we expect to do it all with this saw. It will do all you say it will."

Catalogue and Price List free. Address **W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.**

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to

THE A. I. ROOT CO.

eliotf

Please mention this paper

Men Who Make the Review.



M. M. BALDRIDGE,
ST. CHARLES, ILL.



B. TAYLOR,
FORESTVILLE, MINN.

THE success and usefulness of a periodical are largely dependent upon the men chosen by the editor as correspondents, hence it is worth while to notice who are the *Review* correspondents, and how they were secured.

During the past seventeen years the editor of the *Review* has attended nearly every bee-keepers' convention of a national character; has visited scores and scores of bee-keepers in their own homes, and received and answered thousands upon thousands of letters; in short, he has enjoyed, and still enjoys, a personal acquaintance with most of the leading bee-keepers of the country. When he wishes for information upon some special topic he knows *exactly* where to find it. He knows who is posted on this point, who on that—who rides this hobby, who that; and this wide acquaintance has enabled him to choose, as his principal correspondents, successful, practical men, most of whom have numbered their colonies by the hundred and sent honey to market by the ton, and who can write, from experience, articles containing information of real benefit to honey-producers.

The *Bee-keepers' Review* is \$1.00 a year, or \$1.25 for the *Review* and the book "Advanced Bee Culture."



R. M'KNIGHT,
OWEN SOUND, ONT.



J. E. CRANE,
MIDDLEBURY, VT.

W. Z. HUTCHINSON,
Flint, Mich.

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Please Cut Out
This whole Advt.
Sign, and Mail.

Please send me the *American Bee Journal* each week for Three Months. At the end of that time I will remit \$1.00 for 1 year's subscription, or 25c. in case I decide to discontinue.

To the Publishers of **American Bee Journal**,
56 Fifth Avenue, CHICAGO, ILL.

Name _____

P. O. _____

State _____

32 Pages, Weekly!

Are you Looking For the BEST

In bee-hives, sections, cases, etc.? If so, drop us a postal and we shall be pleased to send you a copy of our 1895 catalog and price list.

G. B. LEWIS CO.,
Watertown, Wis.

My new Catalogue of

Small Fruits, Free

To every reader of this journal. All leading old and new varieties. *Largest stock in Ohio. Lowest prices.* Many new novelties, such as Greenville and Timbrell strawberries, Eureka and Miller raspberries, Eldorado and Ohmer blackberries, North Star currants, Crosby peach, etc., etc. Catalogue free.

New Curlists, O. W. N. Scarff.

Attention, Bee-keepers!

Remember Jennie Atchley will mail you untested queens any day in the year for \$1.00. She is now preparing to fill your orders for queens and bees in 1895.

January to June prices. Untested, \$1.00, 6 for \$5.00, \$9.00 per doz. Tested, 3-banded, \$1.50; 5-banded, \$2.50. Tested Carniolans, \$2.50. I will rear the leather-colored Ital's, or 3-banded; silver-gray Carniolans, and 5-banded, in separate yards at safe distance. Bees by the pound, \$1.00. Nuclei, per frame, \$1.00. This is one of my specialties.

Write me for prices on large lots and to the trade. Catalog ready Jan. 1.

I have been at this business long enough to know how to ship, and please customers. All Bee Supplies. Dovetailed Hives, Root's Goods, and Dadant's Foundation. Figure out what you want, and write for estimate.

Jennie Atchley,

Bee Co.

Beeville, Tex.

Please mention this paper.

Jas. M. Smith, Perkiomenville, Pa., breeder of 16 leading varieties of Poultry. Eggs, \$1.00 per 15. Catalog free.



Vol. XXIII.

JAN. 15, 1895.

No. 2.

STRAY STRAWS

FROM DR. C. C. MILLER.

311 MEMBERS in the Bee-keepers' Union.

POPPLETON's pineapples, page 15, are peculiarly tantalizing to those of us who can't afford the luxury.

SPHAGNUM, or nurserymen's moss, is highly commended in *Le Progres Apicole* for absorbent material.

ERNEST's visit to the Frances reminds me that, years ago, I visited the place but hadn't the courage to introduce myself.

THOSE WHO INJURE larvæ, as mentioned p. 21, by using a quill toothpick, would do well to try a joint of grass cut toothpick fashion.

I CAN WAIT till February for the new catalog; but when's the seed catalog coming? A horticulturally crazy brother-in-law has been asking me.

C. W. LEARNED, in *A. B. J.*, says a five-banded queen carries more safely in the mail than a common one—"the more hoops, or bands, the less danger of bursting up!"

STRAW-COLORED sugar (*sucre candi jaune-paille*) is recommended in *L'Apiculteur* for feeding bees. No water; just put the dry crystals over the frames and cover up.

EXPERIMENTER TAYLOR fed back to get sections filled, feeding 1.61 lbs. extracted honey to get 1 lb. stored. That is, he had filled in sections more than $\frac{3}{4}$ as much as he fed.

COMPLAINT is made in *Le Progres Apicole* of a law that imposes a fine of \$1 to \$3 upon any one who places bees less than 4 rods from a dwelling or a public highway. No wonder!

CAPITAL IDEA that, of sending the right kind and amount of nails with goods in flat. I never can tell for sure the right nails for a new thing, and sometimes I can't get them.

BEE-KEEPERS at the Rockford convention, who, perhaps, had no better pasturage than I, got more honey. Perhaps the reason was their

smaller number of colonies. If I had had only one-tenth as many bees, I feel confident I should have had ten times as much surplus.

A DANGEROUS RIVAL to A. I. Root has turned up in no less a person than our quaint friend B. Taylor, who proposes to get his living out of an acre of ground, just for the fun of it. See *Review*.

QUITE AN ARRAY of exposes on pages 26 to 29. Keep at it, friend Root—makes good reading; and although some people are never happy without being humbugged, the hard-earned dollars of others may be saved.

R. MCKNIGHT, in his *St. Joe* paper, says the Ontario Bee-keepers' Association "is the best and solidest organization of its kind on this continent." The worst of it is, that what he says is true. Yankees can't come up to Kanucks in that sort of thing.

FRIEND ROOT, sorry to see you, on p. 26, give currency to that hoary error that "the forest leaves are decorated by the first frosts of autumn." We often have beautiful autumn foliage before frost, and the tendency of the frost is to stop the coloring.

SAY, BARNEY, what's the row in the printing-office? Four mistakes in three consecutive lines on p. 27. Form not locked tight enough, eh? [Type will sometimes pull out in spite of anything we can do. It was all right when it went down to the press.—Ed.]

THE VERY INTELLIGENT set of York State bee-keepers of the present day are not likely to be succeeded by a set of ignoramuses. The new law requires that every child between 6 and 14 years of age shall attend continuously during the school year some recognized institution.

"THE OLD RELIABLE" celebrates the new year by putting on a new dress, and shedding with the old dress the editorial "we." It also prints its own name the same as any proper name. There's an example for you to follow, Mr. GLEANINGS. [That's a matter of taste, Mr. Doctor.—Ed.]

CARBONYLE, used to paint hives, according to J. Chardin in *Le Rucher*, makes them last sev-

eral times the ordinary length of time, and costs only 3c a hive. But who will tell us what is carbonyl? Perhaps some hideously smelling preparation of coal oil, for it must be dried six weeks before bees will stand it.

G. W. HOLE, in *B. B. J.*, says, "With regard to clipping of queens' wings, there are hundreds of otherwise good bee-keepers who can not pick her out from among her sisters, even if willing to mutilate her." Seems a bit queer to speak of a good bee-keeper who can't tell a queen from a worker.

THAT 19 TONS OF foundation you made in 1894 was a lot. Let's figure. Made 6 ft. to the pound, it would cover more than 5 acres, and fill 256,750 L. frames. Made 10 to the pound, and $3\frac{3}{4}$ in. wide, it would make a strip 230 miles long, and fill sections for 1945 tons honey. [Thanks. Figures are not always intelligible except by comparison.—ED.]

B. TAYLOR, in *Review*, mentions a bee-keeper whom a bee-journal held up approvingly, saying that he "wasted no time fooling with experiments, but just adopted the Quinby hive and system, and went right along making big crops of honey." Then Mr. Taylor shrewdly asks, "But suppose Mr. Quinby had been like this excellent man."

SWEET CLOVER seems to be feared with an insane fear, as a bad weed. Perhaps this comes from the fact that it will hold its own where nothing else will grow. But will it run out a field of red clover or timothy? A few years ago I had a piece occupied with sweet and red clover. First the red came up and hid the sweet, then the sweet shot up in June and hid the red. But since that year the red has gained the ground.

CEMENT-COATED NAILS must be a good thing; but please tell us whether they are any better than rusted nails. [Rusty nails are good, but they don't hold like the new cement-coated, for I've just been trying the experiment. Had a hard time to find some rusty nails around our establishment. The cement is always uniform, while the rusty chaps are apt to be pitted or rusted too much for their real strength. Say, are your nails rusty from choice or because they happen to be so?—ED.]

A FLORIDA PAPER has an appeal for bee-keepers to contribute a pound of honey for each hive to father Langstroth, on the ground that his hive was never patented. That's a mistake. The hive was patented, but it was pirated in such a way that he never got the profit to which he was fairly entitled, and it would be a graceful thing for bee-keepers to contribute to the fund being raised by the editor of the *American Bee Journal*. [That's a move in the right direction; but how are the pounds of honey to be collected together without a large expense? A better way is to send the *value* of one section for every hive to the editor of the

American Bee Journal. The money can be conveyed with no danger of breakage or leakage, and for only two or three cents.—ED.]



SEALED COVERS.

ARRANGEMENT OF OUT-YARDS, ETC.

By E. France.

Who says sealed covers are no good? Others are afraid of them, I suppose, because they have never tried them. We cover all our bees with a solid board, made out of inch lumber, dressed on both sides, cleated at the ends to keep from warping. Over this board we put into the chamber some straw four to six inches deep. The top chamber is made deep enough to hold that much. On some of our hives we have cushions to lay on top of the honey-board—cushions filled with chaff six inches deep. I like the straw just as well. The farmers where we keep the bees furnish the straw. About May 1st to the middle of the month we take the straw out and throw it in piles out of the way. If we use the cushions they are in the way all summer, as we have no place to store them away. We have been using those sealed covers—honey-boards we call them—over 30 years, and have always wintered outdoors on the summer stands. I think we have averaged as good luck as most bee-keepers. Our winter losses are usually light.

I have tried covering bees with cloth cushions, stuffed with chaff, straw, and leaves. I find no better way than putting the solid honey-board right on next to the bees, and covering with straw. We prefer to winter out of doors. I have tried cellar wintering, and did not do as well as out of doors. Now, this brings me to another subject—

HIVES FOR OUTDOOR WINTERING.

I want a quadruple hive, four colonies in one hive, and I want a large hive at that. Then we never have any little weak colonies—all are good and strong. Make all increase by division, and always make a new colony—a full colony, especially if made late in the season.

FRAMES, EIGHT OR TEN.

I have been very much interested in the discussion of the question as to eight or ten frames. I don't know but that I am on the fence, with Dr. Miller. I have eight-frame hives enough to hold over 150 colonies; but if you ask me if eight frames are my choice, I don't really know. I have been led to use them, whether it was my choice or not, in this way: I first made one hive to hold four colonies on L. frames. I made it to use nine frames in each set—two stories high. After I had it finished I found it was too wide-

to slip into a common wagon-box; and as I expected to haul them sometimes from place to place I changed; and all that I made after the first I made to use eight frames in a set, so that is the way it happened that I am using eight frames. I soon discovered that two sets of eight frames did not give me comb room enough; so then, to have more comb room, I put on the third story. In the honey-gathering season I use 24 combs. I think it is none too many. I am still using my nine-frame hive with a third story added—27 frames—and I don't think that is too large. I have 140 colonies in my home yard, and have combs enough to fill all three stories high. For winter I take off the third stories and pack them away in my comb-room. I make sure that the second story is full of honey. I want at least a part of the lower combs to be empty when cold freezing weather sets in; then the bees will cluster in the empty combs just below the honey, and will work up as they eat the feed, no matter how cold the weather is. I think there is at least 2000 lbs. of honey now in my comb-room, that I took off with those third stories, so the bees are in no danger of starving, as they had their second story full in the fall.

In the spring, in March or April, I look the bees over. If any are getting short of honey I change their empty combs for full ones taken from the honey-room. In the spring we work to get all colonies strong; and as soon as the two lower stories are full of bees we put on the third stories and fill up with the combs from the store-room—honey and all. We usually get that on two or three weeks before we commence to extract. By that time the combs will extract nicely.

Mr. Hatch seems to think, in GLEANINGS for July 15, that, if a queen keeps eight frames full of brood, they are boomers. If I had a queen that did not equal eight frames of brood during the breeding-season, she is no queen for me. With our L. frames we keep the lower story of eight frames full of brood, and the surplus brood-combs we make into new colonies. In that way I made 45 new colonies this year, 1894, from 95 old ones, and every one of the new ones were given eight good brood-combs—360 brood-combs, or on an average of nearly four combs from each queen, to keep the brood down to eight combs; no natural swarming to speak of. We very seldom have a natural swarm. We don't have them to hive. When we are extracting we take all the honey we can get from the two upper stories, and keep the brood below. If I should find a brood-comb in the second story, and an empty one in the lower, I would put the empty one up and the brood below. Eight combs, kept at work breeding bees for a three-story hive, will keep bees enough in the hive to fill the two upper ones with honey, in a good flow, once in a week; so they can be emptied once a week; and bees with me worked

in that way don't swarm. I don't know but a three-story ten-frame would give more honey to the hive than the eight-frame. There would be larger colonies, but you could not get as much increase, as it would require ten brood-combs in the lower tier to breed enough bees to work the upper twenty honey-combs. This brings me to another point—

LIFTING HIVES AND TOP STORIES FULL OF HONEY.

I don't have to lift hives. No man can lift my quadruple hives when full. Three stories will weigh at least 400 lbs., and I think more. I am getting too old and feeble to lift a top story full of honey. I use a hand-cart at home, where my L. hives are. For a few years past I have run that yard myself, with the help of one and sometimes two hired boys. My cart will hold four carrying-boxes. The boxes are made with bottoms, two sides, and back boards. The front is left off. They will hold ten combs each, if full. The combs hang on top of the end boards; cleats are nailed on the outside of the end boards to handle them by. When extracting I fill two boxes with empty combs; put them on the cart, then either myself or boy runs the cart alongside of one of my big hives, then turns one half of the top chamber over on to the other half. Now we can work two colonies—pry up the honey-board of one, smoke the bees down and brush off what few bees there may be on them; hang the combs in the empty boxes on the cart; when the third story is empty, lift it off and set it down on the ground, then smoke and take out the second story; set and hang them in the other empty box. Now fill up the hives with your empty combs; put on the honey-board, wheel the cart to the extracting-house, slide the full boxes off on to a platform on a level with the cart. You will not need to lift it. When they are extracted, take them back to fill out the next one worked. Why not use a bee-escape to get the bees out of those combs? Too much lifting to put them on, and I don't think the bees can be got out of the second or middle story any way, with an escape, as there is very likely to be some brood in it. It doesn't matter, however, as I can take the combs out of the two upper stories in five minutes, and no lifting except taking the combs out one at a time.

Now, Ernest, if you can not get along with your out-apiaries run for extracting without so much lifting, come here and let me give you a few lessons. But let me tell you, if you run a good-sized yard for extracted honey you will want some help during the extracting season.

This brings me to another point. When you travel over the country I think sometimes you go too fast. You would do better to take more time. When you got to Platteville you put up at the hotel, and came to our place after church time, Sunday. I told you then that you deserved a whipping for not coming out the night be-

fore. Well, it was Sunday, and I did not feel at liberty to talk bees to you. I expected you would stay over on Monday. My wife took you off to church Sunday evening, and Newell took you to the powder-mills Sunday afternoon, and the train left at 9 A. M., and away you went, so I had but very little time to talk with you. There were very many things I wanted to talk about, and some things I wanted to show you. I expected to take you out to some of our out-yards. We could make three yards in half a day, and talk over bee matters on the road. It costs considerably to get to a place; and when you are there, why not stay long enough to do some good?

Platteville, Wis., Dec. 17.

[Yes, I am afraid we condemned the sealed covers too hastily; and without saying any thing about it in print, I decided we would give the matter another test this winter, though perhaps not on quite so large a scale as before. One half of our colonies at the out-yard are under sealed covers, and the other half under absorbing cushions.]

I know I appeared to be in a hurry while I was at your place; but the fact is, I hurried at all the places—one reason for this being that I had a good many calls to make, and limited time; and another reason was, I feared in some cases I might be a "bore;" but since I have come away and read your last two articles I see that I missed it in not *taking* more time. But after all, our general readers would not have gotten the information regarding the methods of management so fully and accurately as from your pen; but at all events, next time I come I will go straight to the France home and stay till you get tired of me; so, look out.—Ed.]

LARGE VS. SMALL HIVES.

REASONS WHY THE TEN FRAME IS BETTER
THAN THE EIGHT.

By S. C. Cowin.

Friend Root:—I conclude, by reading Mr. Gill's article, which you indorse, that he runs his apiary for extracted honey. It may sound strange, but my experience is that an eight-frame hive is better for extracted than for comb honey, and for this locality it is not good for either kind. I should like to know whether Mr. Gill ever tried his eight-frame hives four stories. I have; and to lift that fourth story is much harder than lifting a third ten-frame story, because it is a lift at arms' length. My hives are on stands eight inches, and it puts a fourth story above good lifting position. Mr. Gill also says, and it's my experience, that, after filling six or seven frames, they *prefer* to occupy two frames above; and if allowed, they will do so; and, as I said in my former article, it gives us ten or eleven frames of brood, and we are obliged to go into the brood-chamber to get this honey which is in the other five or six frames, or leave it through the season, cutting our brood-nest to the size of a ten-frame hive, or any mat near it. This is about the way eight and ten

frame hives have worked for me this past season. The ten-frame brood-chamber gave me about nine frames of brood, with two extracting-supers, each having nine frames working the same as for comb honey, raising the partly filled one and placing the empty combs between the upper and lower stories. This gave me strong colonies with plenty of room, and very little swarming. The eight-frame hives were run two stories for brood-chamber, and gave from ten to eleven, and in a few cases as many as twelve, frames of brood. Two stories were run for surplus, each having seven frames, giving fourteen frames, or four frames less than the ten-frame hive; and as they had more brood they gave rousing big colonies, but also gave me more swarms. Had I gone below and extracted, the result might have been different; but I do not go into the brood-nest after the surplus season opens. Again, I use the large size Daisy wheelbarrow for running my combs to the extracting-room. It takes two ten-frame bodies crosswise and one lengthwise on top of the two, and hard against the head of the barrow, putting most of the load near the wheel, carrying 27 combs at a load. With the eight-frame body I can carry only the same number of bodies holding 21 extracting-combs, or a difference of six combs, or more than 35 pounds of honey at each load less with eight-frame than with ten-frame bodies. You will say, carry four eight-frame bodies crosswise. The slant of the wheelbarrow head lets the square-edge body slide forward and push up the frames; and a bevel edge, not having any thing to hold it, is apt to tip over, and then the two stories so near the hands makes too much of a load.

Mr. Gill wants us to do without dummies and one-story in harvest while he *tiers up* to show us the superiority of the eight-frame hive. Let us take the eight and ten frame, use them to the best of our ability to secure large crops, and I think you will find the ten-frame hive ahead. This has been my experience, and my order this fall calls for ten-frame Dovetailed hives.

Sarasota, Fla., Nov. 23.

[As I read over your article I could not help seeing the point you make; but somehow the thought kept coming into my mind, Would not the 12-frame be better than the ten-frame? That is, the same arguments apply very largely in the case of the 12 over the 10 as in the case of the 10 over the 8. But the 12 is away off from the standard. The thought came to me again. Is not the 16-frame hive better than the 12 frame? if so, then the two 8's, rather than one large 16, should have the preference, so that we can adapt the colony to the season and to the locality. Regarding this, in the last *American Apiculturist* Mr. Henry Alley gets in a good deal of truth something after this fashion:—

[Ed.]

How will the big bee-men settle the question as to whether an eight-frame or a ten-frame hive gives the better result? In GLEANINGS for November 15, two experienced bee-keepers give their experience with hives having eight and ten frames. One of the

above parties says the eight-frame hives gave the best results, while the other man says his colonies in the ten-frame hives did the best.

This is exactly as it always will be. In some cases ten frames will be found best, while in other cases the eight-frame hive will do equally well, if not better. The question of the right number of frames to use must be decided by each bee-keeper for himself.

SHORT VS. LONG LANGSTROTH FRAMES.

WHY THE FORMER ARE PREFERRED: THE DISCUSSION OF LONG AND SHORT FRAMES, AND OF THE LANGSTROTH IN PARTICULAR.

By John Craycraft.

The discussion for and against the eight-frame hive has been read carefully, and I should be pleased to give my experience.

About 15 years ago I used the ten-frame Langstroth hive in Indiana. I then became convinced that it was not the best for economy. I changed part of my frames so as to hang crosswise in the ten-frame hive—that is, I made the frame $9\frac{1}{2} \times 13\frac{3}{8}$ inches—what is commonly called now the short Langstroth frame. I then found I could winter bees better on the short frame, for the simple reason that the bees could form themselves into a more compact body than they possibly could on the long frames during the long cold winter. Then, again, in the spring, when breeding commenced, they could and did breed up with more rapidity than I could possibly get hives with the long frames which were sitting beside the ones with the short frames. This all came from the more square and compact form the bees could form themselves into, which was not possible for them to do on the long frames early in the season, when ordinarily there are not more than enough bees to cover five Langstroth frames.

This is where I found that there was economy in the short frame and a smaller hive, and for spring increase. It is a self-evident fact, that a more uniform temperature can be maintained by the same quantity of bees on ten short frames in a square hive than the same bees can on eight long frames whose space is about the same in comb and cubic contents. I kept this test there for three years, and then I sold out and came to Florida in the fall of 1883. I then started with a few colonies all on the short frames, with square hives, $14\frac{1}{4} \times 14\frac{1}{4}$ in., same depth as the regular Langstroth hive and frame, keeping about 20 colonies until this season, when I increased my stock up to 110 colonies, all on short frames, 10 of them in the brood-chamber, which is made with a tight bottom. All have tin roofs raised two inches above the frames. In the spring I start them up seven weeks before the usual time of orange-bloom, so that, by that time, I have the brood-chamber full, and usually one story above full of brood in various stages. I give queens full play to the top as long as I want

honey-gatherers reared; then I shut the queen below to the brood-chamber with zinc excluders, and add more stories, if needed, by raising the ones up and placing an empty story next to the brood-chamber, filled with comb foundation usually, but I have found that starters are about as good, except there is some more danger of drone comb being built. By thus tiering up, and letting all honey be sealed up, I can get good honey, well ripened in the hive, and keep my bees busy all the time, by thus keeping space vacant near the brood and queen.

I see there are some doubts and failures about getting queens to go up into the story above. I have very little trouble; for when a brood-chamber is becoming crowded I remove two frames of sealed hatching brood from below, placing combs in their place below, putting these two frames of brood in the center, and filling in combs on each side. I then scarcely ever fail to get the queen up there, and I have had them up in the fourth story the past season.

Thus by proper management with the small square hive with the short frame, I have a small compact hive when most needed, and a large one when most needed also, besides using the surplus heat to ripen and cure my honey on the hive, with no loss of bee labor.

With this square hive and short frame I have all the advantages for comb honey that can be obtained in any long-frame hive; with half-stories I can work them with and on the same hive for both comb and extracted. If I wish to work a hive for comb I raise up the story above the brood and place a half-story next to brood, placing the full-story on it. I let the half-story of sections remain below until nearly ready to commence sealing them. I remove to the top or remove the story above, and place another half-story under the one being sealed. I can get comb honey in this way, and also extracted; but there must be no extracting done at this time, or no comb honey will be obtained. This is plain to all comb-honey producers.

I have another claim of economy in the small square short-frame hive; and that is in material. It takes less lumber to form a square of the same cubic contents than the long hive; less roof for same volume covered, and less bottom. All this you can figure for yourself. It is plain to be seen that you have less ground floor in a four-story house of four rooms, and less roof, than if the four rooms were in only two stories.

I should be pleased to call your attention to the following, and then I am done:

In the *American Bee Journal* of Nov. 15, page 625, E. L. Holden says, "I, in 1858, bought of Rev. L. L. Langstroth the right to use his hive, for which I paid him \$5.00. At the same time I bought two hives, both of which I still have, and have just taken the trouble to measure them. The inside measurement of the hive

is $18\frac{1}{8}$ inches one way and $15\frac{3}{4}$ the other, and $10\frac{1}{2}$ deep. The frames are, inside measurement, $12\frac{1}{4}$ and $10\frac{1}{2}$ inches. This is the common hive; the other is his observatory hive of two or more stories. The frames are of the same length, but the depth is only $8\frac{3}{4}$ inches. These frames are the very ones I bought of father Langstroth 36 years ago, and, of course, are the correct size of the Langstroth frames."

Now, if this octogenarian is correct, were not the frames the size of the short Langstroth frame? Were not the frames set across the hive and across the entrance? Who is correct? Is there not hope of a standard frame?

Will not some friend call on father Langstroth and read this statement of friend Holden's and learn for a certainty from his lips the truth? and if not that, the true and original Langstroth frame was not $12\frac{1}{4} \times 8\frac{3}{4}$, inside measurement; so that we who advocate a short frame are within the pale of truth when we claim, at least in part, to be followers of father Langstroth when we use and advise a shorter frame, and a square hive for reason of its economy.

Astor Park, Fla., Dec. 10.

[Years ago the short Langstroth frame was tested quite extensively by a large number of bee-keepers, ourselves included; and the only advantage we could discover was that they were a little lighter to manipulate and better for queen-rearing than the long frame, the two short frames making a small and more compact cluster for the nucleus. But we, like everybody else, discovered that there were just so many more frames to handle for the same capacity, and, with a very few exceptions, they were discarded for the long frame adopted by father Langstroth years ago. I have sometimes thought myself, that, if the crosswise Langstroth had been made an inch or so deeper, and adopted as a standard by Langstroth, instead of the frame now accepted as such, *perhaps* it might have been better. But after all, reports seem to show that colonies on the short frames winter no better and produce no more honey. The Langstroth utilizes to the very best advantage the standard width of barn-boards in the *hives*; whereas in the deep-frame hives very wide lumber must be used, or one or more pieces fitted together. This makes the hive either expensive, owing to the wide boards, or if of narrow boards, to a greater or less extent a patched-up hive, with unsightly cracks that will surely gap sooner or later. Taking every thing into consideration, while the Langstroth standard seems to give just as good results, both for wintering and for honey, it surely does give more surplus room on top—a very important desideratum, by the way.—Ed.]

ECONOMY IN THE PRODUCTION OF HONEY AS A STAPLE ARTICLE.

BEE-KEEPING IN CUBA, IN A NUTSHELL; RESOURCES GREAT, BUT PRICES LOW.

By Fred L. Cragcraft.

In order to correct the impressions of some of the readers of GLEANINGS who seem to think this is the "El Dorado" of the bee keeper, and

that fortunes are to be picked up in a few months, I will give a few facts in regard to the outlook.

During the season of 1891 and '92, buyers paid from 45 to 50 cts. per gallon; in 1892 and '93, from 40 to 45 cts. The season of 1893 and '94 opened at 38; later on, dropping to 35, and during the summer of 1894 prices dropped down to 20 cts. per gallon; and now with new honey coming in, dealers are offering from 24 to 26 cts. per gallon, without package; but before the end of the season prices may go up to 30, or they may go down to 20 cts.; and with sugar at $1\frac{1}{2}$ cts. per lb., and other staple products correspondingly low, and all manufactured goods exceedingly high (Spain having bestowed with an unstinted and generous hand the blessings (?) of a high tariff protection upon this beautiful but unfortunate country), it can be very easily seen that the prospects are any thing but flattering, and the only solution of the problem is by producing honey on a large scale, and economically enough to make it a safe investment.

There are certain conditions here which make it peculiarly adapted to producing honey at a small cost. There being sufficient flowers here to sustain from 200 to 500 colonies at one location, the certainty of the honey-flow, and the small amount of work required to keep the bees in condition, are factors which must be considered in counting the cost of production.

With a modern four or six frame extractor, a lively man who knows his business can throw out a large amount of honey in a day; and where there are a large number of colonies in one place the bees do not get enough honey during the spring and summer to encourage swarming to any extent; and during the "campañilla" honey-flow the bees are never strong enough to swarm; therefore it can be seen that the swarming question can be eliminated.

In order that the readers of GLEANINGS may see the rapidity with which extracting can be done by having the apiary arranged in a convenient manner, I will give a short description of the *modus operandi* in use here.

The sheds for the apiary are 13 feet wide, with a row of hives set on each side, the entrances facing out, and the hives set close up together, there being only about half an inch space between the hives, in order that the supers may be lifted off easily without being wedged in between the hives at the sides. In this manner the hives form a solid wall on each side, making it darker inside, and very few bees enter to bother a person when opening the hives, and it is also a protection in case of robbing, as the robbers do not like to enter the shed; and after buzzing around the entrance a while they will become discouraged and leave. When extracting, a man can fill his comb-cart at one place, saving both time and steps.

Taking into consideration the length of the

honey season, and having all the rest of the year to requeen, I think a man can manage seven or eight hundred colonies by having an assistant during extracting time.

San Jose de las Lajas, Cuba, Dec. 21.

[I think our readers, at least those of latter days, would like to see a photo of one of those bee-sheds to which you refer; then tell us *why* you have it, etc.—Extracted honey at 26c per gallon is about 2½c per lb. Well, if one man can with a little assistance take care of 800 colonies, perhaps he could make a little margin on even this ridiculously low price.—ED.]

RAMBLE 124.

BEULAH LAND.

By Rambler.

We learned that bee-keeping was not neglected in the old historical county of Monterey. I had on my list of correspondents a few, but they were away from our line of travel, and circumstances did not favor our going into the byways of the county. I believe, however, that the county as a whole is not a first-class honey-producer, and may rank with its sister county of San Luis Obispo, on the south, as having only a few and far-between favored localities.

I found some quite nice comb honey in one-pound sections in a Salinas grocery, and learned that it came from an apiary near the Salinas River, some six miles away. It proved that a progressive bee-keeper was laboring there with some degree of success.

After a day's rest in Salinas the ponies were called into duty again, and we circled the Bay of Monterey for many miles, and camped on the sands of the shore where again the thunder of the waves lulled us to sleep. Our neighbors in this camp were industrious fishermen in their humble hut, from whom we obtained a supply for our evening and morning meals.

We this day, July 27, added another county to the growing list we had passed through, and entered Santa Cruz (Holy Cross). We found here a dividing line of hills, not of an arduous nature to climb, but when we had climbed to the crest and looked out upon the scene beyond we were both inclined to shout "Beulah Land!" For weeks we had witnessed dry and barren plains and hillsides; but here was a valley of freshness and beauty where the fields were green, the mountains beyond covered with a wooded growth from summit to base. The transition was so sudden that the following verse came to mind:

A sweet perfume upon the breeze
Is borne from ever vernal trees;
And flowers that, n'er fading, grow,
Where streams of life for ever flow.

The town of Watsonville was nestling like a gem in the midst of the sea of green, and the people we met had a buoyant air about them which was also in sharp contrast to the deflected air that pervaded the agricultural regions

subject to drouth. We had anticipated finding fruits in abundance as we toiled northward, and here our expectations were realized. Fruits of all varieties were plentiful and cheap. Apple-orchards abounded; apples in profusion



PSHAW, WILDER! THAT'S MEAN.

on trees, in profusion on the ground. I had not seen the like of it since I left the far East. An early and opportune rain had given vegetation here a boost that made nature and people happy. Bro. Wilder looked far and near over garden-walls in hopes to see an extra early watermelon; but the festive melon had not put in an appearance, and he had to content himself with a few fresh apricots, apples, etc. We saw the busy bee at work upon the various blossoms, but did not hunt up the owner. I have not learned whether the valley is of much value for honey production; but from a passing observation I should think bees would do fairly well there. That the home market is not supplied by local producers was evidenced by the groceries having on sale the decoctions called "honey," from San Francisco wholesale houses—the usual glass jar, with fancy label and a piece of comb in liquid, supposed to be honey.



WORN CLIFFS AT SANTA CRUZ.

Had there been an enterprising bee-keeper near Watsonville it is evident that this foreign substance would have been crowded off from the market.

From Watsonville to the city of Santa Cruz we found many fine ranches, the owners having so much pride in them that the names were posted conspicuously upon fancifully decorated signs; thus, Sylvan Dell, Glen Echo, Aptos Ranch, and many others were passed. The Aptos Ranch comprised many hundred acres, with a deer-park, blooded horses, and every thing that betokened the wealth and taste of the owner, who, we learned, was C. Spreckles, one of the sugar-kings.

It was in this region we also saw our first specimens of the noble redwood trees. There is a little belt of them here, and they are truly majestic.

By a little extra pushing on the lines we made Santa Cruz just before the shades of evening fell. Our inquiries for a camping-place revealed that there were several such locations. For a quiet place to spend Sunday we were directed to the old fruit-dryer locality. In following up the directions we approached a large building, and surmised it to be the dryer. Several well-dressed people were coming from it, and inquiry elicited the information that it was not a dryer at all, but a tabernacle of the Christian Church, in which there was at the time a State Association being held. We felt that to be just the place to spend Sunday, and accordingly camped in the grove of gum-trees with the rest of the disciples. It was a pleasure to again attend services of this nature,

after quite an absence of several weeks from it. The good brethren were very zealous in their views, and one aged minister came in Sunday morning from a town twenty miles out, and arrived before some of the good people in the tents were up.

In the afternoon we strolled into the city. Santa Cruz is quite a pretentious town, of about 5000 population, and its chief industry seems to be gazing at the ocean, and bathing; or, in other words, it is a great resort for pleasure-seekers. Bathing-houses line the shore, and beyond the bathing-beach are the chalky cliffs which the restless waves have for centuries been wearing away, until caves, tunnels, and many curious formations are the result. The breakers dashing through these formations occasionally throw the spray high in the air. Our walk to town was along the cliffs, and our walk and talk was enlivened by witnessing the antics of the dashing waves.

Santa Cruz had just been enjoying its annual "fiesta." This Sunday was the last day of the celebration. The attractions of the day were feats of horsemanship, shooting of glass balls by Texas Jack, riding bucking bronchos, and a bullfight. The above sports were held in a large inclosure, and we deemed it our sacred duty to stay outside. The bullfights are more or less of a sham outside of a wholly Spanish community, and we afterward learned that this was also a sham, or a trick to draw a crowd.

A quiet crowd was gathered upon the beach, the foreign and Spanish element largely prevailing. Thus we had on this Sunday in Santa Cruz a diversity of attractions that ought to

suit the most ardent sight-seeker, and happiness ought to (and seemingly did) prevail.

DISCOURAGEMENTS.

By J. D. Fooseh.

Friend Root:—I believe that, as bee-keepers, we should report discouragements and losses as well as successes. I know to report loss is not nearly so pleasant as to report success in our business. It has been said, and truly it looks as if it were true, that misfortunes never come single. I will come forward as a bee-keeper who has been reasonably successful in the business for about 18 years; but I must say that this year has been the most disastrous that we have had during the whole of the 18 years; and not only in the bee business, but nearly all other industries failed to the extent that what we made as money, crops sold, and is being sold, fell below the cost of production. The March freeze that caused such widespread destruction showed itself in the harvesting of our grain crops. The wet summer we had told seriously on the cotton crop, which is our money crop; and, to cap the climax, cotton fell in price to 5 cts., and at times below that. This is unprecedented in the knowledge of this generation, since the war, and it is needless to say that all classes are feeling the depression from low-priced cotton. I am not disposed to complain, for an all-wise Providence can overrule all these disasters and disappointments for our good; but, really, the situation is certainly gloomy to begin to farm for another year, to raise cotton at 5 cts., which is the main money crop for the South.

As to my bees, they are in excellent condition for the winter, having stored plenty of honey to carry them through to spring in excellent condition. Had I not fed my bees after the March freeze, I should have lost at least $\frac{3}{4}$ of them, as most people here who had bees lost in that proportion. I shall try to set out another year, trusting that we shall have better success than this in all departments of business. My bees, upon the whole, gave about as good results from the outlay as any thing else that I engaged in.

I mention these facts to show that, while we may be sanguine and prosperous in various departments or enterprises, we do meet with failures occasionally, but no more nor oftener in the bee business than elsewhere. I set a large lot of cabbage-plants last spring, which were all killed, and had to contract for 2000 lbs. seven-top-turnip seed, which was all killed. I now have a contract for 4000 lbs. of seven-top-turnip seed, and can sell thousands of early-cabbage plants if I get orders for them; but it seems, of late years, that all or nearly all our success depended upon getting safely through March.

Coronaca, S. C., Dec. 1.

CHAT ON EUROPEAN MATTERS.—NO. 4.

By Charles Norman.

A correspondent writes that, in September, at a time when the bees were killing the drones, he heard tones that came out of several hives, and these tones he took to be the piping of queens. In one hive the tone was so strong that he heard it at a distance of ten feet. He opened the latter hive, but found nothing unusual. He thinks the sounds were produced by drones "molested by the bees," for "at this time they sometimes make a noise that is not dissimilar to the piping of queens."

Mr. Doolittle's excellent article on the prevention of robbing, in *GLEANINGS* for Mar. 1, page 191, was duly appreciated, for Mr. Bertrand has translated and published it in full for the benefit of his readers.

To find out to which hive the robber-bees belong, we are often told to sprinkle them with flour, etc. Instead of doing this a correspondent puts at the entrance of the hive, all along and very near the entrance, a strip of flour, so that the bees which leave the hive are obliged to whiten themselves in this flour in passing.

The present low price of honey is a source of great anxiety and complaint to the French and Swiss bee-keepers. There are numerous complaints to be found like this: "At this time the great effort of the apiculturist needs not to be directed any longer toward the increase of his crop (as to this, enough directions are given to us), but much rather how to dispose of it;" and in this direction these French-speaking apiculturists display a vim and energy which beat Mr. Dadant's "dreadful Yankees" all to pieces. At their frequent exhibitions (more frequent than in our country) they not only present their finest honey in the most attractive form, but they combine with them a regular honey-market where many visitors who would not buy otherwise are induced and persuaded to purchase, with the expectation of creating a demand on the part of the public for good pure honey. Moreover, they try all kinds of ways of transforming honey into eatable or drinkable things. They make vinegar, hydromel, brandy, and liquors of it; use it for the manufacture of chocolate and bonbons; give directions for making apothecaries' syrups, etc. As the temperance movement is known there by name only, and they are not yet up to an understanding of its noble principle at all, both laity and clergy take a deep interest in the production of the above "drinks;" and not seldom one hits upon articles written by Protestant ministers as well as Catholic priests, in which recipes for making these stuffs are given, and the urgent necessity of creating a market for their sale is set forth with genuine zeal. Allow me to cite just one instance, to illustrate the blindness with which my continental countrymen (I am a German with a little admixture of French blood) are

stricken. In a speech delivered by a noted French apiculturist we find the following: "If, regarding the food substances, our age has a well-characterized taste, it is certainly the one for alcohol and alcoholic beverages. They have been used and abused to such an extent that the general health is already affected by it; and from the chair of the hygienists as well as from the laboratories of the analysts, competent authorities announce a slow but continual degeneration of our race." Now, any logically inclined mind should, from such a premise, it seems to me, draw the inference that we had better abstain totally from the use of alcoholic beverages. Not so our orator. He distinguishes between the drinks which have hitherto been consumed and "the vinous beverages, as well as the delicately flavored and healthful alcohol that can be produced from honey," and then he goes on to tell how these are made!

How the French and Swiss apiculturists cure foul brood by means of formic acid or eucalyptus tincture, etc., I have already described—see page 788, 1894. I still remark, that, that in order to prevent foul brood, many of them place naphthaline under and about the frames.

Mr. A. I. Root, in his A B C, has some kind words for the ants, and says that, so far as his experience goes, they were never any considerable bother to his colonies. A certain Swiss bee-keeper met with quite a different experience. One day he noticed an extraordinary excitement about the entrance of a hive. When looking after the thing he observed that quite a number of ants were attacking the bees about the entrance, biting their legs, wings, and bodies. The bees, being unable to get rid of their enemies, either flew off, carrying them along, or dropped down to the ground from the alighting-board, to die there. Boiling water, applied to the ants and to their nest, restored peace.

There is an instance reported of a mule which fell victim to bees. It was tied to a tree, near an apiary. Unluckily for it, the stand under a hive broke down at this very time, and the hive was upset. The bees threw themselves upon the mule, and treated it in such a manner that it was dead before it could be led to the stable. Every thing, however, has two sides, and the report concludes with the words, "The master consoles himself, because it had become quite vicious."

The laws of a certain bee-keepers' association contained the following article: "Meetings shall not take place on Sundays." For some reason or other this section was repealed, and only one man found fault with it, and withdrew. How different the customs of different peoples are!

In conclusion, let Mr. Gubler, a prominent bee-keeper of the canton of Neuchatel, relate what came to pass at one of his apiaries:

"Last year a lover of sweets tried to help himself from one of our hives. But he came off

badly for that. Probably being a novice in the art of robbing a colony, he directed his efforts toward the very worst of our Cyprians, and selected a frame from the center of the hive at that! Finding, no doubt, more stings than honey, he was obliged to abandon his prey and run away in a hurry. We found the frame lying at the side of the hive, with a cupful of frozen bees. Fortunately the queen had remained with the colony, which has not suffered much by this nocturnal attack."

St. Petersburg, Fla.

THE EUCALYPTI, OR GUM-TREES.

PROF. COOK DIRECTOR OF FARMERS' INSTITUTES
FOR SOUTHERN CALIFORNIA.

By Prof. A. J. Cook.

Dear Editor of *Gleanings*:—You remember the blue-gums and less common red-gums of Southern California, which are, next to the beautiful peppers, the most conspicuous and vigorous shade-trees of this region. The species of eucalypti are desirable here, for they become large trees in a very brief period (four or five years), and go down to water, so that they are independent of irrigation. There are about one hundred species, many of which are exceedingly beautiful, and so this tree is of no mean importance to the people of this sunset land. Like the acacia, there are many kinds, as rich in their beauty as in their variety, and some, at least, are very valuable as honey-trees.

Last week, while conducting a farmers' institute at the wonderfully beautiful city of Redlands, I was entertained by Mr. A. K. Smiley, who, with his brother, owns "Smiley Heights." This place is a marvelously beautiful illustration of what can be accomplished by the art of the skilled landscape-gardener. About eighty species of eucalypti help to form these wondrously varied pictures that charm every one who visits "Smiley Heights."

I have been surprised, the past two months, to find how much honey my bees have gathered every bright warm day in October, November, and December, and they are many. The bees have been busy, and have not a little honey. Upon examination I find the chief source of the nectar is a winter-blooming eucalyptus, which Prof. McClotchie, one of our best California botanists, tells me is *Eucalyptus longifolia*. The bark of this tree is smooth, and so it is a much pleasanter tree for roadside planting than is the common blue-gum, or *Eucalyptus globulus*. The constant peeling of the bark of the latter, which is the most common eucalyptus yet planted in California, makes it untidy, and, in so far, undesirable for roadside planting. The *Eucalyptus longifolia* has long leaves, which doubtless gives it its name. Indeed, the leaves

are much the form of leaves of mature trees of *Eucalyptus globulus*. You remember the peculiar leaf habit of the blue-gum. The early leaves are oval and bluish; while later, as the tree becomes older and larger, the very long green leaves replace the earlier and more curious leaves. This *E. longifolia* has very showy and beautiful flowers. They are creamy white, and the long numerous stamens are very conspicuous. A curious conical cap also falls off the bud as it opens, which adds to the interest of this honey eucalyptus. The fruit is also conical, or top-shaped, and so is attractive after the flowers fade. The tree, like nearly all California trees, is long in bloom. It had been blooming since October, and is certainly good for three weeks yet. That it is a rapid grower is shown in the fact that a two-year-old tree is seventeen feet high. It is very desirable that our bees be able to secure honey during the winter months, and so I wish to urge upon California bee-keepers the wisdom of setting or planting this *Eucalyptus longifolia* as we would the basswood in the East. It is most desirable for roadside planting for other reasons, and must become a valuable acquisition to our bee-keepers. As yet it is a rare tree. Mr. L. L. Pond, of Riverside, writes me that it is very rare there. I find only a few about here, and I have noticed scattering trees at Pasadena and a few at "Smiley Heights."

Another eucalyptus, probably *E. rostrata*, is said by Mr. Pond to be very fatal to bees. It blooms earlier in the season, and Mr. Pond says he has taken gallons of dead bees from beneath the blooming trees. He says a neighbor who has an irrigating-flume beneath the blooming trees has had the holes so stopped up by dead bees that it interfered very much with his work of irrigating. This is very interesting, and I shall give it personal attention next season. It would seem that *E. rostrata* might well be superseded by *E. longifolia*.

There are various reports about the insecticidal properties of the eucalypti. It is reported that the blue-gum keeps the mosquitoes away, and is deadly to many microbes; and a merchant of Los Angeles reports, so I learn from Mr. Abbot Kinney, our best authority on these trees, that the foliage placed among clothing is an effective preventive of moth ravages.

I have been appointed by the University of California as Director of Farmers' Institutes of Southern California. This is exactly the soil for grand meetings. There is so much of ability and culture among the ranchers that the papers are very able, the discussions very free and sprightly, and the attendance and interest are remarkable. I speak at each institute of the value of bees in horticulture, and receive a very hearty response to my propositions.

Claremont, Cal., Dec. 27.

[We, as bee-keepers, will rejoice over the appointment of Prof. Cook as Director of Farm-

ers' Institutes; for that means that the bees will receive a fair share of recognition, and Prof. Cook of all men in a public meeting seems to have a happy faculty of breaking down antagonism against our pets, and of creating an interest in their behalf.—Ed.]

MICE IN BEE CELLARS.

THE DAMAGE THEY DO; HOW TO POISON THEM.

By C. Davenport.

Mice in bee-cellars do more injury than is often suspected. From a good deal of experience I know that a very few mice, if the hives are so that they can get in or at them, will often ruin a good many colonies. When I built my two outside bee-cellars, six years ago, I tried, and thought I had made them mice-proof; but they soon got in. Bees seem to draw and attract mice, and it is pretty hard to keep the vermin out of a bee-cellar. Of course, it can be done; but I will venture the assertion that they can get into 29 out of 30 bee-cellars as they average. Wire screen can be used to keep them out of the hives; but this is a poor plan, for bees that are confined are apt to become restless and excited. Wire netting is used that will not confine the bees but exclude the mice. This is considerable work and expense; and, besides, if the hives are so that the mice can reach them they will gnaw and scratch, trying to get in; and if they are not able to get in they will do nearly if not quite as much harm as if they did, as many bees will come out, and the mouse then helps itself to the choicest part of as many of them as it wants; and it is not only what they eat, but their gnawing excites the bees so that a good many of them leave the hives, and die around in the cellar; and I think this is often attributed to other than the real cause. If this is kept up for three or four months it is apt to cause poor luck in wintering.

The hives in both of my cellars are fixed so that mice can not reach them. This can be done without much work or expense. My hives are set in tiers. The lower tiers are supported about a foot, or a little more, up from the cellar bottom. I would have them like this, mice or no mice. I know that in my cellars, and I think in all cellars, it is better to have the lower tiers up from the cellar bottom; but in cellars that have tight board or cemented floors this may not make any difference. Neither of mine has any floor except the ground. I set the lower tiers on two pieces, 4x4. These are placed about 10 inches apart, and are held up by driving a stake into the cellar bottom at the end of each; and if the 4x4's are long, and the hives are piled pretty high, it will be better to have a stake under the center of each 4x4. I nail two or three narrow pieces of boards, across on the under side of the 4x4, to keep them from spreading. On the top of each stake

I place a piece of tin, about 8 inches square. These tins can be held in place by driving a nail through the center of each into the stake; but this is not necessary; for, after the 4x4 are placed on top of them, they will stay all right. If the whole is a little away from the walls this will keep mice from getting at the hives, as a mouse can not walk bottom side up on a piece of tin. Old pieces of sheet iron or zinc would answer for this as well as tin.

I will now give those of you who have your bees in the cellar so that mice can get at them a plan by which you can get rid of them without their doing much if any harm to the bees. You will need three or four old saucers. Tin covers, or any small dishes that are not of much account for anything else, will answer for this purpose. In one put some cheese that is mashed up fine; in another put some fresh lean pork that is chopped up fine; and if beef is handy, put some of that in with the pork. In the other, put some honey; and if you have both dark and light, it would be well to give them a dish of each kind. Try to suit the taste of all. Season the contents of each dish with arsenic well mixed in; and if these dishes are set around in the bee-cellar, and the contents renewed every two or three weeks, mice will not damage the bees much. It does not cost very much to feed them this way, as one meal is all each one cares for; and if any of you do not care to kill them, it is far cheaper to feed them in this way without the arsenic than to let them help themselves in the hives all winter.

Some of you will probably think it is not necessary to give them such a variety; but in order to have them let the hives alone, I assure you that it is.

Now, probably some of you will also think that I have exaggerated the damage mice do; but I will again assure you that I have not; and in this locality, at least, they are often the cause of heavy winter losses.

Southern, Minn., Dec. 3.

FIVE-BANDED BEES.

BEES FOR BUSINESS: A FEW POINTS WELL MADE.

By J. J. Hardy.

They are very pretty to look at, but every experienced bee-keeper and stock-raiser knows that the fewer points of excellence you strive to attain in breeding bees, horses, cattle, or any thing else, the nearer you can breed up to your ideal of perfection; and not only so, but every added point is detrimental to the others. The *prettiest* bees that I ever saw were those that came in so heavily loaded that they would fall and roll over each other in front of the hive. The prime essential in a honey-bee is its honey-gathering qualities; therefore I breed first for

the best honey-gatherers; then after they have stored the sweet nectar I like to have a divide without bringing on a regular pitched battle. Give me the best honey-gatherers that are good-tempered, and I will be satisfied. Every one must admit that these are the essential traits of a good honey-bee; and whenever you attempt to breed in an additional trait you must do it at the expense of one or both of these.

BEE-SPACE.

After trying different distances, from one-fourth of an inch to three-eighths, I settled down on one-fourth of an inch as the correct bee-space. I use double-top-bar brood-frames; and where all the spaces between top-bars, frames, and supers are $\frac{1}{4}$ inch, I have neither brace nor burr combs.

RAISING QUEENS IN FULL COLONY.

I have tried raising queens in the same colony with another queen by placing the old queen on four or five brood-frames behind the division-board, with queen-excluder, without any chance of exit from the hive. The entrances to these hives were on the side. They built queen-cells readily, and raised queens. But the queens, instead of going out to mate with the drones, seemed to have a mania for killing the old queens, which they did, in many instances, going through a double set of excluders on the division-board, to reach them. But they could not, or did not, get back to go out to mate, and soon disappeared. And the others, too, disappeared in a short time without even laying any eggs. I lost a good many bees by this experiment, but I learned that it is best in bee-keeping, as well as other things, to experiment always on a small scale. I used a single-story hive for these experiments.

Lavonia, Ga.

BEE-PARALYSIS.

REASONS FOR THINKING IT IS NOT CONTAGIOUS.

By S. A. Shuck.

Editor Gleanings:—I have just read Mr. T. S. Ford's article, page 871, on the above subject. In speaking of bee-paralysis Mr. Ford says, "Beyond all doubt it is infectious." And in your footnote you state that it is "positively settled now that the queen can and does transmit the disease."

While the circumstances in Mr. Ford's apiary are such as to cause him to decide so positively, yet there are so many contingencies in matters of this kind that there is much room for error in judgment. If the disease is infectious, why is it that a severe case of it does not infect a part or the whole of my apiary? Yes, if it is infectious why is it that a sudden flow of nectar causes it to disappear altogether, as in Mr. J. P. Israel's case?

While I have noticed a few of these paralytic bees in a portion of my colonies nearly every

every year since obtaining my first Italians, in 1878, there have been but few cases of sufficient severity to require special attention. In the winter of 1882 I had 52 colonies in a temporary cellar, made expressly for wintering the bees. Two of the strongest of these colonies became restless early in the winter, and continued so until set out in the spring, at which time both of them were affected with paralysis. As the spring advanced, the disease grew worse; so that, when the flowers began to yield nectar, they were only about half the strength of average colonies. But at this time they began to recover, and the disease soon disappeared.

The winter of 1884 being very severe, I lost most of my bees; and, having no better place to put the hives and combs from dead colonies, they were stacked up in the yard, and closed up to keep out robbers and moths. After the weather had become quite warm, I discovered that what I considered my best colony was robbing from the combs from dead colonies. This colony persisted in robbing these combs until I had them occupied with other bees. During this time they became affected with paralysis, and began to dwindle away. I removed their queen and gave them another. But by the time they were compelled to turn their attention to the flowers for subsistence they were too weak to be profitable for honey-gathering. At this time they began to recover, and became a fair colony before the season closed.

In 1892 one of my most promising colonies became suddenly affected with this disease. Soon after discovering their condition I removed the queen, intending to give them another; but the bees died off so rapidly that the colony soon perished outright. A part of their combs were given to other colonies, and these were replaced with combs containing bees and brood, thus restocking the hive, and without any noticeable ill effects.

Quite a number of other cases have appeared in my apiary from time to time, but not of sufficient severity to materially affect the working strength of the colonies. If the disease were infectious, my apiary would surely have been ruined by it several years ago. As it is, my bees, so far as I can see, are as active and healthy to-day as they ever have been.

From my observations I have concluded that, in some instances, this disease is the result of a poisoned condition of the honey, and that the poisoning results from incipient fermentation—not that all honey with a slight tendency to ferment is injurious to bees, but that honey in this condition will readily absorb the poisonous effluvia from dead and decaying bees or other decaying matter in the hives. Then, too, I believe that, in many instances, the honey becomes actually sour enough to cause the disease; and I fear that this is the trouble in warm climates such as that of California and the Southern States.

It is no uncommon thing for me to find sour honey in a few hives at extracting time, except in very dry seasons. In several instances fermentation had proceeded far enough to cause great blisters in the cappings of well-sealed combs. Colonies that produce honey of this nature are the ones that have paralysis.

Here is where the many contingencies mentioned above present themselves; and a number of questions naturally arise, of which the two following are, perhaps, of most importance:

What sours the honey?

Why is the honey in one hive sour, and that in a dozen, twenty, fifty, or more, in the same apiary, and gathered at the same time, in good condition?

The answer to these questions is found in the fact that an occasional colony is found, that, for some cause, unknown, I think, to apicultural science, does not possess the ability to properly ripen their honey in average honey weather—especially if the nectar is very thin. As the temperature increases, this weakness becomes more apparent; so that, with a temperature up in the 90's, with an excessively humid atmosphere, such colonies are really worthless; and in a large apiary, at such times, several colonies may show this weakness in a less degree.

Here, I think, is the sequel to the cause of paralysis in warm climates. If the source from which the nectar is obtained is one that naturally produces an inferior quality of honey, and the ingathering is at a time when the atmospheric conditions are such as are mentioned above, a careful examination of the combs will reveal the fact that, in a large per cent of the hives, numerous minute gas-bubbles exist in the honey. If allowed to do so, the bees will seal this honey up; and, although it may be left in the hives several days or even weeks, its condition grows worse, as is shown by the gas-bubbles which become more numerous and larger; and when this honey is thrown from the combs by the extractor it presents a frothy appearance.

During the past fifteen years I have experienced two seasons that gave me considerable trouble with this kind of honey. Bees reared from food of this nature show a decided tendency to the disease in question, even here in Central Illinois; and the longer these conditions exist, the worse the disease becomes, owing to the increased deterioration of the food and the weakened condition of the nurse-bees. This condition continues until the colony perishes; or if a fresh supply of healthy food is obtained, it shows signs of recovery with the first generation of brood thereafter.

Liverpool, Ill.

[I admit that there are a good many contingencies in matters of this kind, and that there is much room for error; but it seems to me you have overlooked a very important factor—local-

ity. As I have often said, this disease has not appeared to be serious at all in the North. It is what it may do and has done in the *South* that we have been considering. I never knew it, in fact, in the colder climates, to cause any particular trouble. An occasional colony, for instance, will show that it is not in normal condition. Investigation shows that it is affected with paralysis; but it does not seem to be infectious, and, if left alone, will go off of itself; but the case does not dispose of itself so easily in the *South*. Possibly soured food has something to do with it; but note this fact: In many instances the removal of the queen effects a cure notwithstanding the bees are in the same hive, on the same combs. This one fact alone by itself, to say nothing of other corroborative evidence, seems to show that the trouble is hereditary rather than one of food; but no doubt good food, like good diet for human ills, would go far toward doing away with the difficulty.

I am very sure that the course of queen-breeders in stamping it out as soon as it appears is the right one. Now, this disease is surely, in warm climates, making serious inroads, and the only way to check it is for queen-breeders—not for their own sake, but for the sake of their customers—to stamp it out of their own yards on its first appearance. So far all of them have held up their hands, signifying their purpose to carry out this policy. As it will entail some expense in the loss of a colony, the ready response of the queen-breeders to agree to this is as generous as it is kind.—ED.]

JAKE SMITH ON BRACE-COMBS.

HE REPORTS AN INTERESTING CONVERSATION CONCERNING THEM.

Mr. A. I. Gleanings—dear Sir:—Jim Short's a good-hearted fellow, but he has some queer notions. But then, a good many people's that way. One good thing about Jim, he never gets mad if you side agens't him. He was over the other day, and Zed had been readin' in your paper about burr-combs. Beats all what that boy thinks of your paper. Why, he reads it through from cover to cover, and then reads the cover. Well, he was a tellin' Jim how it told to get shet of 'em.

Then Jim turned to me, and, says he, "Does your bees build brace-combs?"

"Course they do," says I, "whenever they have a chants."

Then Jim luffed one of his hearty lafs, and, says he, "That's what comes o' gettin' so many kinks out o' books. Now, my bees don't have any book-larnin, and they don't build any brace-combs. Not a blame comb but honey-comb. What kind o' comb is brace-comb, anyway? Do they make it just out o' beeswax or what?"

"Why," says I, "brace-combs is beeswax like any other comb, only it's the little pieces they build in between the top-bars; and when they build between the top-bars and the supers, why, that's burr-combs."

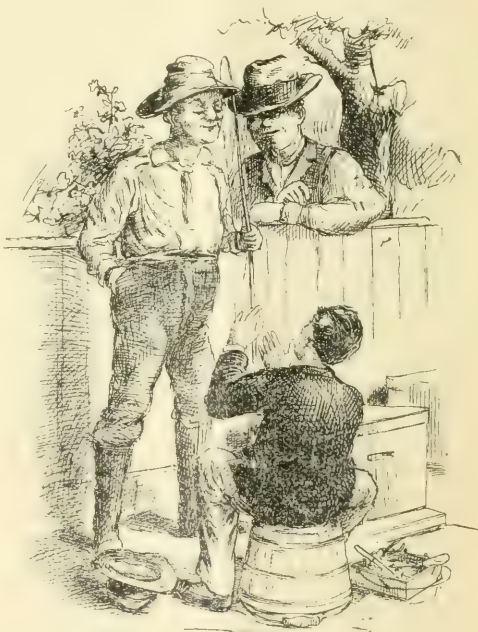
"That's it," says Jim; "you git in so many new fixins with your top-bars and supers and sitch that the bees jist has to start in some new way to keep up. Now I want to know if every-

body that has these new fixins is agreed in tryin' to stop brace-combs."

"I guess they be," says I.

"No," says Zed, "not all. There's Doolittle, one of the smartest in the lot, and he says he wants his bees to have brace-combs—wants 'em for ladders to climb up on; thinks they commence work upstairs sooner."

"Now that stands to reason," says Jim; "you go to work and put on another story for them, and then you don't build no stairs for 'em to climb on, and they go to work and build ladders. Now, there's my house. You know the kitchen floor's two feet higher'n the sittin'-room floor. Now, how would it work to have that two feet to climb up and down all the time with no steps? Hard on the women-folks, hey? Well, you see I jist decently put some steps there; and if I hadn't a done that you wouldn't blame



WHAT ARE THEM BURR-COMBS ANY WAY.

the women for puttin' boxes and things for them to climb up and down on, would you now? And that's jist what the bees do too. They build things to climb up on, soze they won't have to split their legs a straddlin' so far."

"Say, Jim," says Zed, "how many steps is there between your kitchen and sittin'-room?"

"Let's see," said Jim; "each step's about 8 inches rise, ain't it? That would make two steps 16 inch high, and then it would be 8 inch more from the top of the step to the sittin' room floor. Yes, they must be jist two steps. But what difference does it make how many steps they be? Course, they must be steps enough to

git up, no matter how high. What makes you ask, anyway?"

"Oh! nothin'," says Zed, "only I was just a thinkin' if it wasn't so high you wouldn't need so many steps. If the two floors was on a level it might be still better for the wimmen folks; and if they couldn't be exactly on a level, but only about 8 inch difference, they wouldn't need any step."

Jim hawhawed right out. "I guess you've got me, Zed," says he. "I believe in my soul you're right. Make the upper story so fur up they can't reach it, and they've got to build steps; but make 'em so close they can reach from one to the other, and they don't need any steps. You're a great one, Zed. Well, I must be a gettin' along to do my chores. But I believe Zed's about right."

NOTES OF BICYCLE TRAVEL.

AT CHICAGO; ON THE WORLD'S FAIR GROUND;
DR. PEIRO.

By E. R. Root.

Before leaving Platteville, in view of the awful Wisconsin roads that I had gone over I decided to take the train for Chicago direct, and therefore left on Monday morning, and arrived in the city toward night of the same day. The following morning I took the elevator (on 57 Fifth Ave.) for the top floor of one of those sky-scrapers in which is located the office of the *American Bee Journal*. I found Bro. York busy at his post, preparing to mail the next issue of his paper. On asking me how long I would stay I told him that I was one day behind again, and I should have to go that night. He would not have it so any way. I had disappointed him once by giving him only a short call; and now that I was in his possession he intended to keep me at least over night. Resistance was useless, and I meekly acquiesced.

He proposed that we take a run over to the World's Fair Ground for an afternoon's outing, to which I readily agreed, for I was very anxious to see what was left of the most beautiful conception that ever came from the human mind. Having some business down town I told Mr. York I would meet him toward noon. The tire of my rear bicycle wheel had given out, so I stopped at the Chicago office of the Overman Wheel Co., and on their guarantee I got a new tire put on. While the wheel was in the repair shop I ran over to Mr. Newman's, at 147 South Western Ave. I found him in his office, reading the morning paper; and for an hour or more I had a very pleasant chat with the former editor of the *American Bee Journal*, and now manager of the Bee-keepers' Union. As our readers know, he had sold out the journal on account of ill health, and is now confining himself solely to the work of the Union and the sale of bee-keepers' supplies. The season had

not been an extra good one. It started out well; but the railroad strikes, whose center of operations were here, chopped it short off. His customers, fearing they could not get their goods, went elsewhere.

Physically, Mr. N. was looking much better than I expected to find him. He had had very severe sieges of the grip; but he seemed to be master of the situation.

After an hour's pleasant chat I left, to join Mr. York. In the afternoon we took a train for the great World's Fair, or what was left of it. As we neared the place I had a kind of feeling that I ought to see those beautiful buildings looming up once more. But, no; most of them are gone, and that, too, the very best. On going through the gate where we used to pay 50 cts., now open to the public, every thing seemed to have changed. The terrible demon, Fire, had done its work. Midway had turned into a residence street, where just a year ago there was bustle and hustle—indeed, a pandemonium of sights, things, and persons.

Where, oh where! were the Manufactures and Liberal Arts Building? Over yonder were some lofty towers of framework of what might have been, probably, the great building. Tons and tons of massive framework attached to other framework standing, hung dangling carelessly in the air, and seemed ready to drop any moment; and great masses of steel bars were twisted and distorted into every imaginable shape. Bridges were burned; in fact, every thing was so fearfully changed that my heart was sad in comparing the mind's-eye picture of a year ago with what I then saw. The lagoons were there, of course, but the beautiful railings were damaged, and some of the bridges were gone. The Horticultural Building, and the Illinois State, both to me of the least interest of all, were left standing, and over yonder was the Art Building, which, of course, had been put up permanently, and is now a museum.

The grounds in general seemed very much smaller now than the best and greatest of the structures were destroyed, and every thing seemed so changed that it was hard to tell where one was "at," the old landmarks having been almost completely obliterated. Here and there on the banks were gondolas, turned bottom upward, bleaching in the sun. They were of no practical use then, and nobody wanted them. The Esquimaux ponds were gone entirely save the hollow dry spots that marked their location.

Tramping about as we did over the obstructions, Mr. York was considerably tired; for, unlike myself, he was not used to long-distance traveling. We accordingly made our way as best we could over the piles of rubbish, to the Art Building. This stood in perfect condition as it appeared a year ago, and it was refreshing to look upon something that was still left of the Great Fair in a perfect state of preservation.

It is a museum now, and seemed to have a collection of a little of every thing from nearly all of the buildings of the fair. A number of pieces of statuary were still in the building, very near their old positions, and everywhere numerous other exhibits that I remembered. But in contrast with a year ago it was disappointing. Along late in the afternoon, footsore and tired (yes, I was tired too), we made our way to the station, and were soon back in Chicago. After a few minutes in the office we took the train for Englewood, a suburb of the city, where Bro. York lives. On the train we were joined by Dr. Peiro, the one who writes those interesting articles for the *American Bee Journal*, under the title of "Doctor's Hints." I wish I could show you his picture; but he is so modest that I was unable to get it. Never mind. I will get even with him somehow. Evidently he is a man who practices what he preaches, for he seems to be the picture of health; full of life and fun, it is indeed a pleasure to know him. I believe in his profession he makes a specialty of lung and throat troubles, and yet by his writings it is evident he is well up in all that pertains to his profession.

That evening, before supper, we took a look over the apiary of the *American Bee Journal*, situated in the rear of Dr. Peiro's yard. The neighbors at Bro. York's, if I remember, were afraid to have them there, and so the doctor kindly offered to "take them in." Mr. York very modestly professed to know little or nothing about bees,* and wished me to look them over, and assume the role of *instructor*. A smoker was procured, and we proceeded to open up the hives.

"Why," said I, "Mr. York, you have got supers on at this season of the year." (You will remember it was the first of September.) "I would take them off, for surely you do not need them now."

"But they are gathering honey *now*," said Mr. York.

"Impossible," said I.

"Indeed, they are."

On pulling off the covers, I saw sure enough that the bees were putting honey into sections.

"What in the world can they get around here, almost in the city?"

"I can not tell you," said Mr. York.

We opened two or three hives, and every one of them seemed to be busy piling in the surplus. In the mean time Dr. Peiro came out and enlivened the proceedings with his easy-flowing wit and banter. After looking over the bees, Mr. York called my attention to the lawns, as we neared Mr. York's home. I presume there were a good many acres in reach of these bees; and the constant mowing and sprinkling allowed the white clover to spring up and yield nectar out of season; but on sampling the honey

that evening at the table, there seemed to be something besides white clover which was certainly present. It had a beautiful minty flavor, and in my estimation—and I think perhaps in that of Mr. York—it was as fine honey as can be produced anywhere in the world. A swamp near by it evidently gave the mint taste, so pleasant. I have always considered the Colorado alfalfa, since I first tasted it, the best; but this is fully its equal.

That evening Dr. and Mrs. Peiro called upon the Yorks. Somehow or other I felt as if I were out of place, in my knickerbocker suit, dusty and dirty; but I soon forgot my external appearance in the pleasant chat that followed.

The next morning, having had a delightful sleep and good breakfast, I called at the office of the Overman Wheel Co., secured my wheel, and took the train for Toledo. The bicycle at this point was resumed; and on reaching home, 110 miles was made in 9 hours. Thus ends my long trip on the bicycle to the Mississippi, through Michigan.



MRS. HARRISON EN ROUTE FOR FLORIDA.

By Mrs. L. Harrison.

On the 15th of December I left my home at Peoria, Ill., and turned my face in the direction of the sunny Southland. While in transit I looked carefully for the sight of homes of the busy bees. In Tennessee I saw an apiary of considerable size, arranged with care and order, in movable-frame hives; and another, more southward. The weather was like summer, and heavy clothing unbearable at Pensacola, Florida.

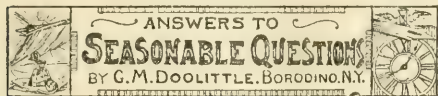
I took passage in a schooner to cross the Gulf of Mexico. We passed leisurely along by the Navy Yard, Fort Pitkins, the light-house and life-saving station, and I thanked my God that I was a citizen of a Christian land, whose government looks after and provides for the safety of her people who do business in great waters. The winds were kind, and the next day we arrived at the place of our destination, St. Andrews, Florida.

Here roses of every hue were blooming in great profusion; pear-trees in full leaf, loaded with a second growth of fruit. While a resident was showing me over his lovely grounds, and directing my attention to the difference in the spray of the Satsuma oranges, he remarked that his bees had stored only 40 lbs. of surplus honey to a colony, which he considered only a third of a crop. This apiary is located near the Bay, so that half of the flight of the bees is over salt water.

*Such modesty in an editor who gets out such a good bee-journal is quite inexcusable.—Ed.

Later.—To-day is the last day in the year, and we look in vain for the beauty which greeted us on our arrival. During the night of the 27th, 28th, and 29th of December there were heavy frosts, and on the 28th ice formed two inches thick, while the thermometer registered 15° above zero. Orange-trees and lemons look sickly, and pear-trees are brown and sear.

St. Andrews, Fla.



DAMPNESS IN BEE-REPOSITORIES.

Question.—I went to my bee cellar to-day and found things quite wet with collected moisture—so much so that the sawdust on the floor was saturated, and a post in the center, and also the inside of the roof, was quite wet, caused by this dampness. The bees appear very quiet, and are apparently doing well so far. Will this dampness do any particular harm, or accumulate to a sufficient extent to injure the bees before it is time to set them out in the spring?

Answer.—Many seem to suppose that a cellar in which bees are wintered should appear absolutely dry in all of its parts; and if it does not, or shows a condition of things similar to that described by our correspondent, they become fearful of the final results, often taking the bees out too early in the spring, or putting them into another cellar or room exhibiting more dryness. It will be noticed that it is stated that the bees "appear very quiet." Now, I wish to say to each and every one, that, so long as bees are quiet, or very quiet, no matter where they are, whether in the cellar, in a room above ground, or on the summer stand, they are wintering in the best possible condition, and should be left undisturbed, no matter if the place where they are is dripping with moisture, or so dry that you may fear the bees are suffering from want of water. Quietness is the essential quality for safe wintering, for with it always comes the least consumption of stores, and with a minimum consumption of stores comes the least possible exhausted vitality and the greatest longevity during the spring and early summer days. Under such circumstances I have had individual bees by the thousand, in single colonies, live from the first of September till July first of the following year, or for a period of ten months, this being known by a change of queens on or about the tenth of August. On the other hand, I have had colonies which would not quiet down during the fall, and bees which were hatched in such colonies the latter part of September were worn out with old age, and died before the first of February, not having lived to exceed four

months. From all the experience of the past, I am convinced that the temperature of the bee-repository has more to do with the safe wintering of bees than any other one thing, and especially is this the case where the repository is affected with dampness as was the one our correspondent describes. Should the temperature in such a repository sink to near or quite to the freezing-point, it will be found that the bees will no longer be quiet, but will become uneasy, and go to roaring, and running out of their hives, should such a temperature continue long; but if the temperature can be kept at from 42° to 48°, all things will continue as they are at present, unless some disturbing element enters in besides moisture.

That I might better tell you regarding this matter I have just been to my bee-cellar, where I consider my bees wintering well, to see how I found things. I have 80 colonies in it, to where I have usually had only from 50 to 60, and I find that the extra number of colonies give off more moisture into the air than has usually been the case in years past—so much so, that, on this second day of January, I find the inside of the bee-cellar fully as damp, or wet, as I presume many would call it, as it generally is by the first of March; while, instead of the temperature staying at about 44°, as has usually been the case, it now stands at 47°, or within half a degree of this all the while. Well, how wet do you find the inside of the cellar? The sawdust on the floor, the furthest from the door, is so wet that I can nearly squeeze water out of it, while near the door end it is barely moist enough to be pliable in the hand. This sawdust has been unchanged for two weeks; but after the examination, I have spread evenly over the floor another flour-sackful, this covering up all dead bees and the sawdust there when I went in. In two weeks I shall put on another sackful, and in this way the floor is kept sweet and nice. The roof, or upper ceiling, of the cellar is covered with flagstone, as the older readers of GLEANINGS will remember, and I find that the moisture has condensed on these stones sufficiently to be running down on the under side (very much as you see the steam or moisture from your room trickle down the inside of the window-panes in the kitchen when you are boiling vegetables for dinner), to an extent sufficient to form little puddles of water at the foot of the stones where they rest on the mason-work walls. The moisture condenses on the inside of the door, and runs down in the same way it does from the stones, as the door is a painted one; and, in spite of there being four doors in the entranceway, this inside door is the coolest place in the whole cellar.

Now I think I hear some one say, "Why, that cellar is absolutely wet;" but such is not the case, for the hives and all about them (they do not touch the wall or floor of the cellar) appears as dry as in summer, and will so long

as the colony of bees remains alive inside. But should any colony die, then the combs and honey take on moisture very similar to the door and flagging; and if the colony should die soon after being set in, the combs would become quite moldy by the time the bees should be set out; but as I have not lost two per cent in this cellar of late years, not many combs thus become wet and moldy.

Perhaps some of the readers of GLEANINGS would like to know how the bees appear. They are so quiet that I stood with a lighted candle in front of one colony, holding the candle within fifteen inches of the bees for three minutes, and I could not see that a single bee moved at all; but a little breath from my mouth upon them, at the end of this time, made them all raise their abdomens and thrust out their stings, and in a minute more they were crawling about, some nearly ready to fly at the light, when I withdrew from them and looked elsewhere. Some of the strongest colonies have nearly as many bees hanging below the bottom of the combs as one-half of your hat-crown turned bottom up would be, while others show just a row of the points of the abdomens standing out all along between the bottoms of the combs, while still others are up so far between the combs that no bees are to be seen from the bottom of the hive. To any lover of bees, the first and second described are so enchanting to look upon that it becomes almost bewitching, and it is with reluctance that I leave the cellar every time I go in. To look on a cluster of from two to three quarts of bees hanging below the combs, like a swarm in July, all perfectly motionless, and each bee lapping over its neighbor like rows of shingles on the roof, right in the middle of the winter, with the mercury outside at from 10 above to 15 below zero, is a sight which will dispel the blues, and a sight which is apt to give almost any one the "bee-fever." At least, I find that I have a touch of that disease myself at this time, although I have kept bees now for 25 years.

Borodino, N. Y., Jan. 2.



DO DRONES CONCENTRATE ON ANY PARTICULAR HIVE?

Do drones ever concentrate on any particular hive, and eat it out of house and home, as it were, during the working season or any other time?

JERE. LARUE.

Perris, Cal., Dec. 19.

[We never knew the drones to concentrate upon any particular hive, although it is possible that they may do so. If you were a beginner we might suggest that possibly the killing-off of the drones at the proper season when hon-

ey stops coming in would bring about the effect you describe. The bees push them out of the hive, and they concentrate, as a matter of course, around the entrance. They certainly look hungry enough to eat the colony out of house and home.—Ed.]

STRONG FOR THE TEN-FRAME HIVES.

I have been much interested in the discussion of the eight vs. ten frame hives. I give you a little of my experience in this section in using the two side by side for three seasons.

I got more honey and better swarms each year from the ten-frame hive, from one-fourth to one-third difference, with that much more winter loss in the eight-frame, for which I set 50 out of the eight-frame to the ten-frame hive. Most bee-keepers are discarding their eight-frame hives for the ten, in this section.

For extracting I tier up two and three stories high, using eight frames above in a ten-frame body to save so much uncapping. For comb honey I tier up with supers as room is needed. Swarming is harder to control in eight-frame hives—more inclined to swarm, and not so large as from the ten-frame hive.

We have had three very poor seasons here for bees. I have only 125 stands at present.

Washington, Ind., Dec. 3.

S. D. COX.

A POOR YEAR FOR W. K. BALL; THE ADVANTAGE OF EXTRACTING IN POOR YEARS.

We had a very poor season here; still, I think my bees did well. I took 13,000 lbs. of extracted and 1500 lbs. of comb honey from 100 hives. I think that is good for a poor year—don't you? I find there is a big advantage in extracting, over raising comb honey, in a poor year. I sold my old stock of bees last winter, and went to California (near the town of Hanford), and got 100 colonies of Cyprians, with a mixture of Italians. They are good workers, but fearful stingers. My comb honey is not as white and nice as common. I lay it partly to the poor season and partly to the strain of bees. I am going to try the Carniolans next year. I understand they make very nice white comb honey. I don't like that greasy-looking comb. Is it the Italian or the Cyprian that makes the dark-looking comb? I received 20 Carniolan queens from Mr. Lockhart, and expect 4 more. They are very nice.

Reno, Nev., Nov. 12.

W. K. BALL.

CARP CULTURE, ETC.

Mr. Root:—Do you remember the pond under my greenhouses? Well, you put a good deal of enthusiasm in me when I read your "Carp Culture;" so, two years ago, I put in 35 carp, 4 to 6 inches long, and now there are thousands of them. The old ones are 10 to 14 inches long, and we can drop in a hook at any time and catch one. I had not tried to catch one till this week. I don't care what others say, as for me and my house, we rate carp a No. 1 fish. When I was in Medina I thought A. I.'s carp-pond

looked neglected. We made another pond last week, and will stock it with carp as soon as spring opens.

GEO. M. KELLOGG.

Pleasant Hill, Mo.

[I am glad to be able to tell you that our carp-pond does not look as sad as it did. Just before Christmas, during the fine open weather, we cut a ditch alongside of the bank of Champion Brook, 400 feet upstream, to a little dam across said brook. Then we put in three-inch tile, put a little dam across the brook, and the carp-pond was filled up right speedily with nice clean rain water that fell on the ground in winter time. Just as we got the whole thing finished, and working to my satisfaction, a zero freeze came on, and now we have pure rain-water ice fully eight inches thick. In fact, it is ready now for the ice-house, and the carp have plenty of room. I am glad you pronounced them a good table fish.—A. I. R.]

FENCING POULTRY "OUT;" HOW HIGH MUST THE FENCE BE?

Mr. Root:—Are you not mistaken about hens not flying over netting one foot high? We have Brown Leghorns, and they fly like hawks—are for ever on the move in daytime, and are the most prying, inquisitive things that I know (that wear feathers).

D. W. DICKINSON.

Hickman, Ky., Dec. 24.

[Friend D., we have had quite a little experience in the matter, and we find that one foot seems to answer every purpose with our large breeds of fowls, and we have some small ones also. Of course, this is for fencing them *out* of any particular locality. We once had a strawberry-plot near the poultry-house. It was put out originally for raising Haverland *plants*; but before we knew it we had a big crop of berries. The hens found them and commenced to work on them before they were even red. We put a strip of poultry-netting around the whole inclosure, only one foot wide. Of course, it was put up as high as we could put it without allowing the hens to crawl under. Not a berry was touched afterward. Some of the Brahmas walked along the fence, and looked over; but none of them got in. Of course, you can not fence fowls *in* with any such fence; and I presume the arrangement will answer only where they have unlimited range. Perhaps they reason this way: "Why should we take the trouble to climb over that thing when it is such an easy matter to walk around it?" They would accordingly walk around the corner; but, not finding the strawberries, they got their minds on something else, and walked off in another direction. I tried those same strips of one-foot poultry-netting to keep the neighbors' hens away from some peas. I had not enough to go clear around the peas, so I extended the fence two or three rods beyond the patch, in both directions. It served the purpose of warding them off about as in the former case—that is, it stopped them from going straight from the barn to the pea-patch; but occasionally a fowl that was out in the fields, on her way home would get into the peas. It must be remembered that poultry will seldom meddle with peas any way, where they are properly provided for otherwise.

Ernest suggests that 18-inch netting is a little better, and two feet still surer. His experience was in putting such a fence around his dooryard, to keep his neighbors' fowls away. Of course, this will be a little different. Where one man keeps a lot of fowls, and is pretty close up to a neighbor who does not keep any,

a division fence to make the chickens stay at home, especially if said chickens are in a town where they are pretty closely circumscribed any way, would need to be a little higher. Then it is to be remembered that chickens are like cows and horses in regard to getting out of an inclosure. A certain flock may become so educated that they will do very unusual things. Notwithstanding, the narrow strips of poultry-netting oftentimes serve very important purposes. We have a lot of iron rods sharpened at one end, and a little coil made at the other, to get hold of easily. These can be quickly thrust into almost any ground so as to make the strip of netting just right when it is hooked on the ring at the top of the iron stake. You can put up such a guard against the fowls almost as easily as you can chase them away, and then the job is done with until your crop is ready to be gathered, then pull up your stakes and roll up your netting until it is wanted next time. A 150-foot strip of netting, one foot wide, costs now only 67 cts.—A. I. R.]

ROBBING SICK PEOPLE.

Mr. Root:—I have just read your article on Electropoise, and was much interested, as we have an instrument that just answers the description of it, but it is of a different name, "Oxydonor Victory," manufactured, patented, and invented by one Dr. H. Sanche, 264 West Fort St., Detroit, Mich. The price is \$25. It is exactly the same in appearance as Electropoise. Whether it is a humbug or not I can not say. My mother had a very estimable and intelligent lady nurse who heard of Oxydonor, and went to Toledo and investigated the same. She personally interviewed some of the most prominent business men of the city who had used it. She became interested, and took an agency for the same. Mother gains some; and father, who has not done much work for some time past, does a good deal now. I myself cured a case of bowel trouble, and it was of considerable standing. It may be that we all would have got better had we not used it. If it is a swindle it ought to be exposed, for it is an exorbitant price. I am not a scientist, and could not analyze it should I take it to pieces; hence I write to you.

I have not written this for publication; but should you find the machine a fraud, and want to, you may use this; but please suppress my name, as it would only make hard feelings, as the agent here investigated it for us.

If I can help in any way I shall be glad to do so. My mother has paralysis. X. Y. Z.

[Friend Z., one test will apply to all these things. If the thing you describe has any virtue, then a new force or power has been discovered; but scientific men, our intelligent doctors and teachers, know nothing of any such discovery. What you tell us only illustrates again the *awful* fraud and swindle that these men are putting upon the public. The fact that prominent business men indorse it, again illustrates the credulity of the people at large. It *must* be imagination. It can not be any thing else. The very fact that they charge \$25.00 for the trifling bauble is one big evidence that it is a fraud. It is exactly on the same principle as hanging something about your

neck for a charm, or nailing a horseshoe over the door, or having little heathen gods stuck all over the house, as the Chinese do to ward off calamity and disease. With the general intelligence and science before us at the present time, people of intelligence ought to be ashamed of themselves for accepting such logic. I suppose you know that people afflicted with paralysis and many other diseases, when they are thoroughly aroused, oftentimes break away, as it were, from the disease. They have sometimes thrown away their crutches under the influence of a bottle of some kind of medicine; and yet had the bottle contained water, and they did not know it, the result would have been just the same. Many thanks for your concluding words.—A. I. R.

In the issue of *Electricity* for Jan. 9 we find a further considerable expose of Electropoise. We have room for only the concluding sentence:

Every religious paper in America might well keep standing in a conspicuous place in its columns the words of Dr. Holmes: "Quackery hobbles along on two crutches: the one is the superstition of women; the other, the indorsements of clergymen."



EIGHT extra pages this issue.

WE have quite a number of good articles awaiting their turn for insertion.

UNDER "Seasonable Questions" is a valuable article on bee-cellars—that is, how to *know* when the bees are doing well. This is a troublesome question for beginners, and even some older in the business.

HEAVY rains are rejoicing the hearts of California bee-keepers. Given a certain number of inches of rainfall, and the honey crop is assured for that State; this year the conditions, if I am correct, are met. Last year little or no rain fell, and the consequence was little or no honey.

THE new *American Bee Journal*, as it came to our office shortly after Jan. 1, was a pleasant surprise. It has been changed from a 32-page small to a 16-page large size. The printing and binding, of course, as usual, are excellent, and the selection of matter is also of the highest order. If it can maintain the pace that it has set for itself (and York will make it), the "old reliable" will boom.

G. M. DOOLITTLE, in the *American Bee Journal*, has an interesting article on large versus small apiaries. He says, and very truly, that the results from large yards are not as great in proportion as from small ones. He sees large reports from apiaries of not over 50 colonies, but not from four times that number. It is like every thing else I suppose—some lines of business will pay good returns on a small scale;

but on a large one, failure is the result. There is much in the man and the location.

You will remember that I said we had great hopes of the granulated sugar and honey giving better results than the ordinary Good caney made of confectioners' or powdered sugar and honey. We are just receiving responses of queens sent to Australia some time last fall; and while the results are not all that we could ask, they are very much better than from any former attempts of late. The only difficulty seems to be now that the granulated sugar is too coarse, and rattles about in the cage, and interferes with the bees. We are just corresponding with the view of getting a small paint-mill, to grind the sugar and honey into a perfectly soft paste. I have an idea that such a mill would cause a more perfect union of the honey and sugar.

THAT GREAT FREEZE IN FLORIDA. AND ITS EFFECT ON BEE-KEEPERS.

WE have just enjoyed a very pleasant visit from Wm. A. Selsor, of Wyncote, Pa. He had just come from an extensive business tour of some 3000 miles throughout Florida. He had been all over the State just previous to the great freeze, and all over it again just after it. He reports that all the beauty of that remarkable State is gone. Every thing seems to have been killed from one end of the State to the other; and the mangrove—one of the main stays for honey—has been so thoroughly killed that it will take it three or four years to recover. Although the bee-keepers will get honey as before from palmetto, their large crops will be cut down very materially until the mangrove can begin to yield. There is desolation in the orange-groves, and they are characterized as "slop-tubs" by reason of the carloads of decaying fruit. As to what the Weather Bureau might have done to prevent this, see High-Pressure Gardening elsewhere.

DOOLITTLE AND THE FIVE-BANDED BEES.

IN the *Progressive Bee-keeper* Mr Doolittle has a very fair and interesting article replying to the statement of the editor (which I copied on page 877), that the five-banders can not be produced from Italian stock. He holds that the Italian is *not* a pure race; and as it is liable to sport, especially in the number of yellow bands, it is perfectly feasible to produce the excess of yellow without the aid of Cyprian stock; that he raised bees with more than three bands before Eastern bees were ever brought to this country. In relating how he and Mr. L. Hearn developed the original so-called five-banded stock, he adds that they are not only beautiful, but good workers, and gentle, though he admits that they are less hardy for winter when compared with the darker stock.

I have personally seen in his own apiary some

of Mr. Doolittle's choice yellow stock. They were perfectly gentle; and although it is *possible* that other blood might have crept in, in view of Mr. Doolittle's statement to the contrary, and the care characteristic of him, it is improbable. But I do insist that some five-banders are vicious, and poor workers; and the conclusion forces itself upon me that there are *some* careless breeders, and perhaps not as conscientious as they might be in keeping out the Eastern blood, for it is *so easy* to breed yellow from this race. The yellow stocks at present in our yard came from a number of breeders, and the progeny of the queens vary greatly.

WINTERING; WHY THE INDOOR PLAN GIVES
THE BEST RESULTS IN ONE LOCALITY AND
THE OUTDOOR IN ANOTHER.

In the *American Bee Journal*, in the department of Queries and Replies, the question is asked, "Do you prefer the single-walled or the double-walled hives?" The majority of respondents vote for the first, but not one of them seems to mention the part that locality plays in the matter. In fact, they all live either far south or far north. Of course, those in the southland would prefer the single-walled. Those who live where the winters are pretty cold, as a general rule prefer the indoor plan, because the double hives hardly give protection enough. But where the winters are moderate, and in some others where great quantities of snow fall, the double hive, I am sure, gives the best results. In our locality the outdoor plan surely does best. We sometimes have a couple of weeks of weather when the thermometer registers 10 degrees below zero; but more often it is open, with several weeks of fairly warm weather sprinkled in. It is *then* that the *cellared* bees get uneasy, fly out on the floor, and die by thousands; and it is *then* that *outdoor* bees get beneficial flights. Where the winters are continuously cold for the most part, the cellar plan gives the best results, because it (the cellar) can be kept at an even temperature, or nearly so. This means a light consumption of stores and comparatively few bees dying on the floor. Since writing the foregoing a well-written article on bees in cellars has come which I indorse—see p. 59.

L. L. LANGSTROTH.

I have before alluded to the fact that our aged friend and benefactor is in rather destitute circumstances, especially since the death of his son-in-law; and although there have been many calls on our bee-keepers for contributions—in fact, so many that I almost dread to speak of any more—I do think it behooves us each and all to remember father Langstroth. Perhaps the younger members of our fraternity of bee-keepers do not know about these things as well as we older ones do. By the way, some years ago quite a number of the veterans agreed to set

aside a certain sum of money each year, as a remembrance, or, perhaps we might say, a New Year's gift to our veteran benefactor. How many of us have kept sacredly this promise? I know of one man, and his initials are A. I. Root, who waited till the 10th of January before sending in his offering when he ought to have sent it the 1st. Perhaps it may be something of an encouragement to others to say that we have been paying Mr. Langstroth \$50.00 each year, for a long time past, and we have felt happy in doing this much. I have made these remarks thinking there may be others who would really enjoy giving our old friend a pleasant reminder that his services are gratefully remembered by bee-keepers. The *American Bee Journal* has been keeping this matter before the people for some time past. Will the other bee-papers do what they feel would be right and proper in reminding their readers of the debt we owe?

A. I. R.

THE BEE-KEEPERS' UNION.

THE Tenth Annual Report of the Bee-keepers' Union is before us. The General Manager, in commenting on the past work of the Union, says:

I am glad to state that the Union has everywhere exerted such a soothing influence that now the enemies of the pursuit are very cautious in commencing a suit against bee-keepers. Lawyers have read in their Law Journals reports of trials which have resulted disastrously to the complainants, leaving them to pay the costs, and they generally discourage such litigants unless they have well-filled pocket-books, and they discover a chance to make liberal fees. Even then, many of them will not undertake a case which gives no promise of success. Quite often they advise their would-be clients to send to the Bee-keepers' Union for documents; and when such are received and read, the arguments of Judge Williams and the decision of the Supreme Court of Arkansas are so convincing that they quite willingly nurse their wrath, and permit their bee-keeping neighbors to enjoy their rights and privileges.

One or two cases are on hand, and advice has been rendered, and the result will be given in the future. In the line of adulteration, the history of the Hunt honey-adulteration case is given, with the details of which our readers are already familiar. The financial statement is as follows:

FINANCIAL STATEMENT.

Balance, as per last Report.....	\$721 71
Fees from 311 members for 1894.....	311 00
Expenses for the year.....	\$1,032 71
	254 20
Balance, Dec. 16, 1894.....	\$778 51
Donation, L. M. B.....	5 00
Total balance on hand.....	\$783 51

The *American Bee Journal* for Jan. 3 contains an article from G. W. Demaree:

I want to suggest that the proper thing to do is to elect a new set of officers for the National Bee-keep-

ers' Union. I think a change, from time to time, is best for all such institutions.

Let all sentiment be laid aside, and let each member vote for some intelligent "bee-man" (our sister bee-keepers have a higher mission than is found in court decisions); properly distributing the number to be elected throughout the country as justly as is practically possible.

As to any change pertaining to "General Manager," that can be safely left to the judgment of the members. I can see no reason for any change in that respect, as the office of "General Manager" is hedged about by a board of directors—the president and vice-presidents. As one of the "old board," I shall positively decline to act in the future. I want to see a change.

Another thing I want to suggest. 'Too much money in the "treasury" is a temptation to lawsuits. I regard the Bee-keepers' Union a temporary concern. When we have obtained from courts of repute a sufficient number of decisions to put bee-keeping on even grounds with other pursuits, each bee-keeper must then do his own "lawing." I have practiced the profession of law, and know whereof I affirm. There is a specific stage of civilization that leads men to resort to the law as a mode of warfare against their enemies. No "union" should encourage that sort of civilization. This world—not this country alone—is becoming full of "unions," and "trusts," and "combines," and "societies," of every earthly description, and there is a cataclysm ahead, or the "watchers" of the "signs of our times" are mightily mistaken.

There is a good deal of truth in what he says, and we commend the article to our readers. It has seemed to me several times that the work of establishing precedents in law, so nobly and well done by the Union in the past, is nearly at an end; and as the extract from the General Manager says, there is less trouble now from jealous neighbors than formerly. It seems to me that the Union should do more in the way of hunting out suspected cases of adulteration—in fact, assume the aggressive—that is, employ detectives to follow up a few of the unscrupulous city dealers, for instance. Surely there are funds enough in the treasury to do this work.

THE EXPERIMENT AT THE MICHIGAN EXPERIMENT STATION, OF FEEDING BACK.

In the *Bee-keepers' Review* of Dec. 10, Experimenter Taylor reports having fed two colonies to fill out unfinished sections, for the purpose of determining the amount of loss or gain. The following is the table as it appeared:

Net wt. of sections adjusted.	Amount fed.	Amount of unfinished product.	Net gain.	Gain per cent.	Pounds fed for one lb. gain.
41 28½	106½	110½	69½	65.3	1.53
	112	99½	65½	58.4	1.70
69½	218½	205	\$135½	61.8	1.61

In summarizing on the result, Mr. Taylor says:

By a simple process of calculation, taking the value of the material used and the market value of the product, it will be seen that the profit is more than 50 per cent and this would have been consid-

erably increased had all the sections been partially filled at the beginning of the experiment.

I understand how he arrived at his conclusion, but it seems to me the figure, 50 per cent, gives a wrong impression. Let us glance for a moment at the table. By running across the figures at the top, and stopping at the last item, it is shown that, for every pound of unfinished honey, it was necessary to feed about 1½ lbs. of honey. The same item just below for the other hive, shows the proportion of 1 to 1¾. Mr. Taylor says, "The profit is more than 50 per cent." Now, I do not see it in that way. In the first place, there was the labor; and in the second place, the bees were probably stimulated to the rearing of brood—such brood as would probably be of no use to the colony later on. It seems to me the question is, which would bring more in dollars and cents—the extracted honey fed in the liquid form, plus the unfinished sections, both as separate items, or the total amount of finished product in one item, as the result of feeding? According to the Honey Column in this issue, extracted honey of good quality brings at wholesale 7 cts., and comb 12. Taking the figures for one hive which Mr. Taylor fed, there are 41 lbs. of unfinished sections, which we will say ought to bring on the market at least 8 cts. There was 106¾ of extracted, which was fed back, which ought to bring 7 cts. The total for the two items thus would be \$10.75. The amount of unfinished product for the same hive, in feeding back, was 110¾ lbs., which would bring, according to the same price current, 12 cts. per lb., or \$13.29. Subtracting \$10.75 from \$13.29 would leave \$2.54, which would represent the gain in dollars and cents; or, when reduced to percentage, 23½ per cent, instead of over 50 per cent, as Mr. Taylor makes it. But this \$2.54, it seems to me, is largely offset by the labor of feeding. May be I am mistaken; but I really can not see any great gain from a dollars-and-cents point of view. But Mr. Taylor's feeding back was, I am of the opinion, more favorable than it ordinarily is. Take the case of Mr. A. F. Unterkircher, for instance, of Manchester, Mich., about 70 miles southwest of Mr. Taylor's residence. It will be found in full in our issue for Feb. 1, 1886, page 101. He fed back 175 lbs. per colony to 20 colonies for 35 days, and got back only 62½ lbs. of finished comb honey per colony; in other words, he fed nearly three pounds of extracted for every pound of comb honey secured; or, to carry out the dollar-and-cents comparison—for every 20 cts. worth of *extracted* honey fed, he got back 12 cts. worth of *comb* honey. He says further: "Thus the consumption for the 20 colonies; in the secretion and forming of wax scales, and for brood-rearing, evaporation, etc., is the enormous total of 1650 lbs., or 82½ lbs. per colony. . . All this [stings, etc.] is certainly enough to disgust one in feeding, to say nothing regarding the loss in the operation."

WHY PEOPLE ARE OUT OF WORK.

SOMETHING BOTH ENCOURAGING AND DIS-
COURAGING.

Dear friends, I am moved to write this because of a little recent experience. Some of you know, but perhaps not all, that in our saw-room we have saws to cut across the grain. These are called "cut-off" saws. Then we have saws to split boards lengthwise of the grain. These are called "rip-saws." One is all right for the ripping business, and the other is all right for the cut-off business; but to change them about, neither would work at all. Oh, yes! you might crowd a board lengthwise a little way on a cut-off saw, and *vice versa*; but it would be like hitching a team to the back end of a wagon instead of the front, to do work. Well, now for the illustration:

There was a man in the saw-room, who, if he were given boards square in shape, or something near square in shape, would continually make a mistake and push them against the saw at right angles from the way they should be pushed; that is, he did not seem to know whether he was sawing with the grain or across it. When I heard of it I remonstrated with him. I told him I could hardly believe it possible that he, a grown-up man, should even *once* make such a blunder as that. He excused himself by saying that others did the same thing frequently. I have not learned whether this is true or not. I told the foreman of the room, when we were discussing the matter, that, in my opinion, the man who does such a thing even once should be sent home, and never permitted to come into a shop again where machinery is used. The above may be rather severe. Perhaps it is; but one whose mind is not on his work to the extent that he does not know whether he is pushing his board lengthwise or sidewise, I should say that he by such act of indifference or half-heartedness, literally *cuts off* his chances of making his way in the world. It is just this very thing we are considering that makes the difference between a man worth 10 cts. an hour and one worth 25 cts. an hour. You may say that everybody makes mistakes sometimes. Yes, some kind of mistakes. But did you, my friend, ever in your life, hitch a horse to the back end of your wagon, and start off, instead of hitching it to the front end? My illustration is, perhaps, a little exaggerated, but it shows what I mean. Now, this man of whom I am speaking is or has been a special friend of mine, and one whom I should be glad to help. When his shortcomings have been reported I have taken his part, and talked with him, and afterward said I was sure he would do better. When he did not do better I began to study into the case, and this has come to light: He is naturally full of boyish spirits, and is much given to good-natured jokes and pleasantry; and he carries this thing so far that he is very apt to be making fun during his work. We have had trouble in the saw-room by certain ones indulging in throwing blocks at each other. Notices have been put up, requesting that this thing be stopped. But even right in the face of these notices I saw this man throwing a block at one of the other men. He explained it by saying that the block was thrown at him, and that he simply threw it back again, and *it happened* to see only the last part of it. Now, this may be some excuse, but it is not a sufficient one. A grown-up man with a family to support should be above every thing of this sort—that is, during working hours. Some people do not seem to be able to comprehend the fact that almost all kinds of work nowadays require *careful, thoughtful, earnest* attention. The men who get good pay, and who are mak-

ing great strides in their profession, concentrate all their energies—all their *attention* and *thought*—on the work in question. Let us take another view of the matter.

I believe we have now the reputation of making pretty fair work—I will not say the best in the world, for every little while—in fact, almost continually—some customer (sometimes a customer from clear across the ocean) is calling our attention to little defects in our work. A few days ago one of the endless chains in the machinery that makes our sections broke a link. A new one was put in, and the machine was supposed to be all right. Mr. Calvert happened to pass by, however, and he discovered the bolts of beautiful white basswood were not passing squarely through between the dovetailing saws. One end of each bolt was ahead of the other. It was only just a "lettle," as old Yankees would say; but that "leettle" made a great part of the sections grooved too deep on one end, and not deep enough on the other. The men who were running the machine neglected to make very careful tests after the breakdown, to be sure the work done was exactly as before the break. When we hold our councils—that is, the members of the cabinet of the A. I. Root Co.—it is the same old thing over. "Oh, I wish we knew where to get real careful, accurate men—men of *intense devotion* to the work that is intrusted to their charge!" Now, please do not all of you write to me, saying that you are just the chap we are after, and that you want to come here. If you are just the chap we are after, you would not be out of work. People would be watching for you, and bidding for you, and may be quarreling about who should have you. I know, for I have grown gray in this sort of thing. Sometimes I have been tempted to say, "Oh, why is it that God made so many worth so little, and only a few worth so much?" But, hold on, God did *not* make us so. We did it ourselves, and we are *doing* it ourselves. The man who has good common sense can stop his foolishness and play, and attend to business if he tries hard. He can, if he *cares* enough about making a success in life, and the chances are that he can do it at home, right where he is. You see, the successful bee-keepers and the successful berry-growers and the successful men anywhere, and they are the earnest, keen, hard-working people. They do not always work hard with their muscles, but their brains are ever on the alert to discover better ways, and to achieve greater perfection. Now, it is not because these heedless people do not know what nice work is; for if they want to *buy* any thing they are oftentimes the first ones to complain of something that is not what it ought to be. We all know when we are properly served by the rest of the great outside world; but a great many of us do not *care* very much whether we serve other people honestly and well or not.

This little sermon is written on New Year's day; and if it meets the eye of some one who is out of a job, or is likely to lose a job which he already has, may God rouse him up to recognize and realize what I have been telling him; and may the Holy Spirit help him to see his faults as others see them. My friends, I too am guilty of poor work. I am guilty of half-heartedness and of slipshod ways—that is, at times I am. I sometimes fear, however, that I am oftener guilty of being too vehement and exacting because others around me seem to be so indifferent to what is going on before their eyes—yes, to put it plainly, so *stupidly* indifferent to their own interests; or, to put it in a sadder way still, to the interests of their *wives* and *children*, and others depending upon them.

After the above was dictated, the following

came to hand from our good friend Geo. M. Kellogg:

The reason I wrote my "want" ad. (p. 33) so sarcastic was, I am so bored by men who claim to be gardeners, etc., when they know but *one thing*—that is, to laze around and kill time. I just turned off a man to-day, after 2½ days' of work, who came and recommended himself so highly that I really thought he might be a good help. I would not give such a man his board. I would rather take a green boy, and teach him how to work. I am down on fossils in human form.

Pleasant Hill, Mo., Dec. 29.



ON THE WHEEL.—LA CLEDE CO., MO.

There are a good many peculiar things about Missouri; that is, they have different crops, and different ways of doing things, from what we have here in Ohio. The great staple seems to be corn; and the rich black soil, full of humus, for the most part, seems to be especially adapted to corn. Now, with such immense crops of corn, the price gets very low; and in a good many places the crops are a good way from railroads; therefore, to use up as much as possible of it, a great deal of pork is raised. The wire fence that troubled me so much to get over was one of the pig-proof sort. As there are immense tracts of forest, or, rather, scrub-oaks (for the greater part of the trees are a peculiar kind of oak of small growth), and these oaks furnish most seasons immense quantities of acorns, to use up this great quantity of "shack" the pigs—especially those belonging to poor people—are allowed to run at large. The consequence is, the farmer who raises crops must fence the pigs *out*; and so they have fences with barbed wire very close together down near the ground—so close, indeed, that many of them are chicken-proof as well as pig-proof, unless the chickens jump and get through the wide spaces a little higher up. In running my wheel over the dry leaves through these trails in the woods I often ran into droves of pigs. By the time I conclude, however, that they are not going to be frightened at the wheel, as the horses, cattle, and mules are, the leader of the drove gives a peculiar grunt of astonishment and fright, which is the signal for a general stampede; and if I do not slow up, I am sometimes in danger of getting rolled into the leaves among the pigs. Well, where pig-growing is such an immense industry there are great quantities of pork thrown on the market; and in order to furnish a *balanced* ration (ham and eggs) great quantities of poultry and eggs are produced. In fact, Missouri ought to be able to furnish ham and eggs enough for at least a part of the great wide world. The women-folks have a great deal to do with poultry-raising; and friend Abbott's bright spicy poultry-talks at the farmers' institutes have made him quite a general favorite with the sex. It won't hurt him any, for he is a good man, and always remembers the faithful little wife who so well looks after the comforts of his neat little home in St. Joseph.

These great cornfields are a splendid adjunct to the poultry business—especially the turkey line. Turkeys, you know, ramble over miles of territory. One of my brother-in-law's neighbors has a flock of slate-colored turkeys num-

bering over a hundred. He said they started out in the morning like a regiment of soldiers, taking the fields and woods, and every thing that came before them, each turkey marching perhaps twenty feet from its neighbor. He said they went away every morning, and generally came in about an hour before sundown, keeping up the same line of march in all their raids. I told him I should certainly have to go over to his place to see them, and I happened along just at the time specified—about an hour before sundown. They were just emerging from the woods, in a long line, all abreast. As they went over the pasture-lot, every cricket, grass-hopper, bug, and worm, was pretty sure to be detected by their keen sharp eyes, and you could see them do their work as they moved forward. Of course, they get into the cornfields some; but I believe it is generally considered that they do enough good in their march to atone for the corn they take, for corn is cheap down in Missouri.

But even with the great numbers of turkeys domesticated, there seems to be still a field for more, for wild turkeys are even yet quite abundant. They live, I believe, mostly on corn and acorns. In fact, so plentiful are they that they often mix, and the eggs of wild turkeys are sometimes set and hatched under the tame ones. They grow up with the rest very much as if that were the way they had always done; but when the wild turkeys fly over them on their way south they are very apt to catch the fever, and burst the bonds of domestication, and soar aloft with their wild untamed brethren.

The man who owned the turkeys, finding I was greatly interested in sinkholes, such as the country abounded in, told me there was quite a tract, several miles away, where the ground had suddenly dropped down forty or fifty feet, leaving steep or even perpendicular sides all around the inclosure. The road used to run through this piece of forest, and a man rode over on horseback only an hour before the sink occurred. As the rest did not seem to be particularly curious about such phenomena, I decided to hunt it up on my wheel. After various meanderings through the woods and across the clearings I discovered that I had got beyond the spot. Many people seemed to know but little about it, even though it was in their immediate neighborhood; and they speculated as to what "that fellow on the wheel" wanted of that large sinkhole, anyway. Some thought I was prospecting for minerals. At length I found a little log house in the wilderness, belonging to the man who owned the property where the ground had dropped down. Nobody was at home but the woman of the house. It was getting toward night; and darkness in a locality where it kept one busy to get through by daylight was not the thing to be most desired. She said I was to follow the road down to a wheatfield. Then I was to go straight through the wheatfield, and I would find the road again on the other side. When I got there, "straight through" seemed to be a pretty difficult matter to manage. In searching for the road I got off into the thick and tangled forest, and lost my bearings; and as the sun did not shine I could not even tell which way I came from. I was lost in the woods, and obliged to drag my wheel, and pull it through the underbrush. No matter which way I went, the bushes and vines grew thicker. I pushed for the top of a little hill, thinking I might see some signs of human habitation in some direction; but it was all unbroken forest. I could not discover in any direction any thing that looked a bit like the path or the wheatfield I had left. It may seem a trifling thing for a full-grown man to acknowl-

edge his weakness, and to ask direction from on high, just because he has lost his way in the woods only a little way off from human habitation at the worst. I felt weak and tired out in working my way through the tangled brush; and, almost before I knew it, that little prayer burst forth—"Lord, help!" Almost as the words were on my lips I stooped down to get a better view away off through the bushes and underbrush. In one direction I could see quite a distance; and at the end of this view a little patch as big as one's hand showed something that looked as if it might be a log house; and the words, "O Lord, I thank thee," followed almost as swiftly after the appeal for guidance. Before I reached the log house I struck a trail that led me to the door. There I found that I must turn around and go right back, for I had just come in from the very neighborhood of the sunken half-acre. I do not think it comprises more than a quarter of an acre—perhaps a little more all together; but the sight of it fully rewarded me for all my toil. The largest trees in the forest had gone right square down until their tops reached but little above the ground where I stood. I managed to slide down through the sand and dirt until I came to a point choked up with bushes, briars, trees, dirt, and stones. It seemed as if an opening had broken through and let every thing run down into it until the trees, etc., stopped the hole up. I got right down into the very crater; and then it occurred to me, what if my feeble weight should start the thing going once more, and I too should go down, down, who knows where? I confess the thought of it made my heart beat a little faster as I climbed up the steep sides through the loose dirt and stones. I found the road that had been broken suddenly off where the ground went down. This drop, too, like the others, was near the summit of a hill. Can some geologist or somebody else tell me why it is the hills instead of the valleys that suddenly give in, down here in the Ozark Mountains? Has this any thing to do with the reason volcanoes burst forth from the summit of the highest mountains?

Of course, I had many pleasant visits in Lebanon, the county-seat. It is a very pretty town. The stores are neat and attractive; and as business is dull, goods are sold, many of them, at very close margins. The merchants are vying with each other in getting the trade of the country people, and may be they know their own business better than an Ohio wheelman can tell it to them. But I want to venture a suggestion. If some merchant in the town of Lebanon would put up a watering-trough, so the farmers could water their horses in front of his store, giving them that beautiful "electric" (?) water, it seems to me it would be a bigger advertisement than all the signs he could put up, or all the advertising he could do in the county papers. If I am correct, there is not a place in the whole town where horses can be watered—that is, no public watering-place. A little out of town there is, it is true, a sort of millpond where horses can be watered by driving right down into the mud. My brother-in-law told me that this pond arrangement was a recent improvement. Where is the Humane Society down in Missouri? By the way, there are no such watering-places in the whole of Missouri—that is, none that I found—like those we have here in Ohio. In our own and adjoining counties where I have traveled with my wheel we find substantial watering-places every four or five miles in almost every direction. These are more frequent, however, in hilly countries, where springs furnish perpetually running water. Through the level parts of our State, town wells with good nice-work-

ing pumps are found in the center of most of even the small towns. Let us now go back to Lebanon.

All through the southwestern part of the State of Missouri there is a sort of general agreement that hitching-posts should not be placed in front of stores. In fact, you seldom see a team standing in front of a store at all. When farmers come in from the country they hitch their horses near the church or to the fences in the outskirts, and then travel on foot to the stores. When they get ready to go home they can, if they choose, drive up in front of the stores to load in their purchases. On one occasion a friend missed a train because he had to drive out of town to find a place to hitch his horse. This whole matter is fixed by ordinance passed by the town; and I was surprised to hear one of the teachers at the farmers' institute pitch into hitching-posts. The only reason he gave was, that it made the town look untidy; and hitching-posts, where horses gnaw them, afford means of communicating disease from one horse to another. Now, I am sure this whole matter can be managed. In Medina we have iron hitching-posts that horses can not gnaw, and I know a good many of the country people feel bad the way they are being used. I asked Robert which of two towns would get the trade if one would furnish convenient places for hitching teams in front of the stores, steps for the people to get out on the sidewalk, and public watering-places where horses could drink, while the other town furnished no such inducement. He said the farmers would almost in a body patronize the town that tried to make them welcome in the ways mentioned above.

Terry said, at one of his recent institutes in Indiana, that the merchants of a certain town provided a good dinner for all the farming friends who came to the institute. When the farmers expressed some surprise at this, one of the men of the town got up and said: "Look here, neighbors, when we happen to be out in the country at dinnertime your doors are always thrown open; your wives bring out their best things laid away for company, and you never think of asking us to pay. It is a pity if we can not return the compliment when you have a meeting here in town like this, once a year."

Now, that is the sentiment exactly. Farmers throughout our country have been having a tough time of it. Sad will be the day when the people of our towns and cities think it behooves them to look down on the farming community, or to laugh when drouth and flood prove disastrous to the crops. United, we stand; divided, we fall.

When the people found out how curious I was about caves, sinkholes, etc., somebody told me there was a natural tunnel not ten miles from the county-seat—a place where a horse and buggy could be driven through under ground nearly a quarter of a mile—a tunnel of God's own making through the hills. Few people, however, could tell me much about it. One man said that, instead of being a quarter of a mile long, it was only 75 or 100 feet through it. He said, too, there were stalactites and stalagmites like those in Salt-peter Cave. I suggested that it was a natural bridge, but he said it was not a bridge at all; it was, rather, a tunnel through the hills, and a tunnel that crooked and turned.

The weather turned cold, however; reports came from home that Ernest was laid up, and Mrs. Root said I had seen enough holes in the ground for one visit. So I reluctantly bade adieu to Laclede Co., Mo.; but it made me feel a good deal as it did in leaving Tempe,

Arizona, without even visiting Superstitions Mountain. By the way, after I left Superstitions Mountain a band of explorers found a great gold-mine somewhere near its summit, and speculators are taking their victims right into the mountains and exhibiting them gold that stands right out in plain sight—not quite in plain daylight, but plain enough so that thousands and thousands of dollars are being put into it. Am I sorry I did not stay long enough to help discover the gold? Not at all. God has not called me to develop gold-mines. If they could be separated entirely from the gambling and swindling and robbery that seem to be so invariably an adjunct, I might like to see them; but *my* field is the strawberries, the beautiful honey, soft water from artesian wells, and all these things that are awaiting man's touch and skill: and how we may secure them by our labor is more in the line, I am sure, whereunto I am called.



He hath filled the hungry with good things.
LUKE 1:53.

The words of our text are taken from that wonderful speech of Mary, the mother of Jesus; in fact, it is a part of her salutation to Elizabeth. I hardly need explain to our readers that this promise means something more than simply satisfying our bodily appetites, or that the good things mentioned are simply something to eat. When we are tired out with the cares and worries of the day, and when hunger comes as the result of honest, earnest labor, we enjoy taking our food. But this joy and this satisfaction that we experience would be a very poor feeble thing to *live* for. It may be that there are people who think more of what they shall eat and drink, and who spend more thought in making provision for good things to eat and good things to drink, than any thing else; but I am sure the most of us would pity such a human being. I confess I feel a little ashamed of myself, sometimes, say after having had an enjoyable wheelride, because I take so much comfort in partaking of food and drink. I am glad of one thing, however—I very seldom take either food or drink without first thanking God for it. When I am away from home, a great many times there are no thanks given—that is, at least, no general audible thanks before we take food and drink; and in public places it is not to be expected that all should unite in recognizing the great God above before each meal.

While I am dictating these words we are only a little way past New Year's day. The words, "Merry Christmas" and "Happy New Year," have scarcely died away from the streets and in the homes, and wherever we go. They are coming even yet through the letters; but I am afraid our people are almost too busy here in our work to remember to return these kind wishes and salutations. But we think of it, nevertheless. It is this "I wish you a happy New Year" that impressed me to take up this thought.

A good many times, especially during this year of 1895, I have tried to analyze this "happy New Year" expression. What does it mean? A great many times the well-wisher adds something about prosperity; but financial prosperity does not make a man happy. If he has been working hard, and the prosperity

comes as a result of his labor, then I confess there is a kind of satisfaction and peace in seeing things come into shape. He has his reward for doing his duty. In my department of the work here I almost always have a great lot of things on my mind. I sometimes say to myself, "Oh, dear! this thing *must* be attended to before the day passes." But the day does pass, a great many times, when it is not done. More important things crowd. But if I keep on trying, and asking God for grace and strength to tackle each new difficulty, by and by I get at least a good many of them done. Then I feel glad. The one who neglects and neglects, and *continues* to neglect, is not very likely to have a happy New Year, nor a happy year of any sort, for that matter. In fact, I do not know of any one thing that makes a man more miserable than to keep neglecting and putting off things he ought to do.

Now, this expression in our text, "good things," means substantial things. Why, everybody knows—at least, it seems to me everybody knows—the good things spoken of in the Bible are the most substantially good of any thing there is in the whole world. We are enjoined on every page to "seek first the kingdom of God, and his righteousness." Of course, it is not worded that way; but we all know the attitude the Bible takes; we all know the spirit of it. It enjoins us to be unselfish; it enjoins us to find our satisfaction and happiness in working for the general good of humanity—in striving to lift up, to restore faith and courage to the faint-hearted or to the weary soul. Man's wisdom—I do not mean manly wisdom (because manly wisdom would be God's wisdom); but the fashionable worldly wisdom—would be to take notice of the rich and the great, and to seek for their favor, but to overlook the downcast and the discouraged. The mother of Jesus opens her mouth in thanksgiving and praise because God has seen fit to send his Son into the world, among the poor and lowly. He has passed by kings and princes; he has disregarded the crowned heads and those who sit in palaces; he has sent his greatest gift, the gift of his Son, into the world, to the homes of the poor and lowly, even to the birth in the manger. Now, dear friends, when we say to somebody, "I wish you a happy New Year," what thought have we in mind? do we wish such a person worldly prosperity that he may wear fine clothes, and be spared from the toil and drudgery of every-day life? God forbid! There are some overworked fathers and mothers who ought to take a little respite; they ought to have a little more time for the easy-chair, and perhaps lay off some of the soiled clothing used in every-day work. But let us not think of making them happy by going to the other extreme and sending them into town to live, with nothing to do but to kill time. Oh, dear! what an expression—killing time—throwing away as valueless one of the most precious gifts that God ever gave!

I often find happiness by a change of occupation. Sometimes I take a day or two off, and, instead of going around among the clerks and hunting up things that are wrong, I go off in the country to ride my wheel, and in this way I find recreation, relief from care, and enjoyment; and, while I think of it, may be the dear friends at home find a certain kind of *relief* also. But I rather think they like to see me around, notwithstanding, especially when the Holy Spirit fills my heart, and these bright texts are bubbling forth and shining forth from my every-day life. But, again, how shall we all have a real happy New Year? Will lots of money bring it? Oh! no, no. Will a chance to ride in the Pullman cars, and plenty of money to

procure the best seat in the stage-coach, or to drive a stylish rig of one's own? Again, no, no. Will expensive clothing that will make people stare and wonder? Will a suit that costs enough to buy a farm, worn around every day, make you joyous and full of good nature? Surely not. It may be well for us, under certain circumstances, to wear our best clothing, and to look neat and tidy, and to be well dressed. We expect the pastor of our church to wear good clothes, and to keep them clean. His appearance is expected to be somewhat a symbol of his holy office; but where any individual expects by his fine and expensive clothing to let people see how much money he has, or have them take notice that he does not have to work for a living, or to let his clothes indicate in any way that he thinks himself of more consequence than people at large, then we certainly need not envy him, for I am quite sure he is not having a happy New Year. A good many times he is really to be pitied. So is the man to be pitied who, through pride or any other mistaken idea, burdens himself with that which does not benefit his fellows, or make him happy. There is no pure, lasting, substantial happiness to be found in this world except that which comes from helping to make others happy; and this is the secret of the Christian's joy and peace.

There is always a tendency among humanity to think that getting a great lot of this world's goods makes one happy. Children, at a very early age, exhibit selfish traits. They get a taste of delicious fruits, and straightway the little one, who has not got far enough along to know better, reaches out his hand to grasp and control *all* of the good fruit. When he takes a look at his brother or neighbor's child, and considers that the little companion loves these things too, a struggle commences in the little heart. Shall he divide? or shall he, because of superior strength, or because he has *possession*, monopolize the whole of it? Sometimes you can see the struggle going on in the little heart. It is a conflict between self and the higher and better trait of benevolence and love toward one's fellow-men. Oh, dear me! if it were only in childhood that we see this disposition, what a grand thing it would be! Who has not read of the exposures being made in the Tammany Ring business, without wondering how it is that men can be so foolish or so *behind the times* as to want, besides a liberal salary, large bribes of money, or gifts that may be offered them as a reward for violating a sacred promise, or for violating and trampling down the best instincts that can enter into the human soul? Surely there can be no "good things"—that is, *real, substantial* good things—in the life of a man who recognizes at every minute that he is traitor to his employer or traitor to the government which he serves. I wonder if they ever find professing Christians in such disgraceful work as this. What a *dead* kind of Christianity it must be, to find a man who professes to love God and his fellow-men *selling his soul* for the privilege of enriching himself just a little with something that does not belong to him! There are complications in business, I know, dear friends; there are places where it seems hard to decide what is exactly right and what is wrong.

But may God be praised, there is always open a way before us, or before any one who wants to do right. Make the matter a subject of prayer; ask God to tell you what is right and what is wrong. If you are honest and sincere in this you certainly can never go a great way astray. Our walk in life may be a very humble one. We may have to work very hard, and we may be obliged to wear poor and cheap

clothing; but we may enjoy to the fullest a host of good things—good things that rich millionaires have no suspicion of.

By the way, as the years roll on I am getting better and better acquainted with the men sent out by the different States to teach at our farmers' institutes. I have been greatly pleased to see how plainly and simply these teachers furnished by the State are dressed. They get pretty good pay; and if these men saw fit they might dress in much finer clothing than the average farmer, even when he comes to a farmers' institute. They are nice-looking men, every one of them; but I never saw any thing flashy or dudish about a single one of them. Almost if not quite all of the institute workers are Christian men. They quote quite largely from the Bible in their teachings and instructions. T. B. Terry often speaks Sunday evening, and his talks are very *practical sermons*, even if they do not contain very much theology. W. I. Chamberlain, the originator of the whole idea of farmers' institutes, is an ordained minister. Waldo F. Brown, whom I met only last week, at Ada, O., gave us one talk that I wish could be given from every pulpit in our land. It might include a good many practical every-day matters for a Sunday *sermon*, but I do not think it would be of any less value on that account. By the way, I have sometimes wondered who is back of our farmers' institutes. Who is it that decides in regard to the men who are *safe* and those who might be *unsafe*? Evidently, somebody who thinks our farming people do not need any more teachings in the line of skepticism. By the way, is it not true that progress in agriculture goes hand in hand with faith in God and belief in immortality?

The man who labors only for self, and for the enjoyment that he can find in selfish pleasures while his life shall last, and no further, can not well be a *progressive* man. He can not well be a help to the community in which he lives. He can not well be a blessing to humanity round about him. One who builds, however, for the benefit of generations who shall come *after him* must have faith in God. It seems to me, too, he must have an animation and inspiration that come only through faith in God, belief in a hereafter, and love toward his fellow-men. The man who does great things is the one who rejoices to see things going on, and to see people happy, even though he has no part in it. To go still further, the real hero whom we all love and reverence and respect is the one who is willing to bear *toil* and *pain* that *others* may be happy, and grow, and arrive at achievements that were unknown to him. This is the Christlike spirit. The lowly Nazarine *died* that we might *live*; and when we so far forget self that we are rejoicing and feeling happy to see others happy, and to see them grow in wisdom's ways, then shall we all at once discover we are getting hold of the *good things* ourselves. We are slowly discovering the *pearl of great price*. Let us now close with that beautiful thought given by Christ himself:

Then shall the King say unto them on his right hand, Come, ye blessed of my Father, inherit the kingdom prepared for you from the foundation of the world. For I was a hungered, and ye gave me meat; I was thirsty, and ye gave me drink; I was a stranger, and ye took me in. Then shall the righteous answer him, saying, Lord, when saw we thee a hungered, and fed thee? or thirsty, and gave thee drink? Or when saw we thee sick, or in prison, and came unto thee? Then shall the King answer and say unto them, Verily, I say unto you, inasmuch as ye have done it unto one of the least of these my brethren, ye have done it unto me.



SPACING STRAWBERRIES, ETC.

I have once or twice mentioned the difficulty of getting strawberries for field culture evenly spaced over the ground without having it cost more for labor than we could afford to pay. Let us go over the matter briefly.

Our strawberry-book directs that the rows be 4 feet apart, and the plants 2 feet apart in the row. This is the plan Terry has decided on, and he gets his fine even stands by letting the runners go out and set pretty much their own way; then in the fall he goes over the plot and takes out the superfluous small plants so none are left nearer than about 6 inches apart. I believe he assists in getting a complete matted row by spacing the runners while they are beginning to root—that is, he assists nature by placing the runners so as to cover the ground evenly. When it comes time to put on the mulch, the matted row is from 18 inches to 2 feet wide; and none of the plants, as I have before mentioned, are nearer than 6 inches apart. Well, a great part of our planting is done, as you know, in the early fall, after some crop is taken from the ground; and while our fall-set plants put out runners to a considerable extent, they do not, of course, produce so full a stand as where they are planted in the spring; therefore it becomes *exceedingly* desirable to have the new plants evenly spaced. In fact, we get finer and larger berries, because our plants have more room. But it is *exceedingly desirable*, as I have said, to have what plants there are, pretty thoroughly distributed over the ground—that is, over this strip of ground, say 18 inches wide and the length of the field. Now, I have for years been trying to find a man or boy who would do this spacing, and do it well. I hope none of our friends will feel hurt when I say that I have been again and again disappointed. I have said to myself, "Now, I am sure this man or boy will understand, with sufficient explanation, just what is wanted, and that he will fall in love with the job, just as I love it." In fact, I do not know of any prettier work in the world than to take a nice piece of ground, with strong thrifty plants putting out runners rapidly, and train them so as to have a nice even beautiful strawberry-bed. You think the matter is very simple, do you? Well, let me explain some of the points that the workman must keep constantly in mind:

First, he must swing the runners around to the right or left, so that the new plants shall not all be on one side of the old plant, at the same time keeping in mind that each new plant shall be at least 6 inches from its neighbor.

Secondly, as we keep the cultivator constantly running between the rows, the first thing to do is to make a narrow row—that is, avoid stretching a runner out at right angles so it will run out where the cultivator will be sure to dig it up. Of course, the man who runs the cultivator can swing around a plant thus stuck straight out, or he can jump his cultivator over it; but I emphatically object to putting him to this trouble. His business is to stir over every inch of ground possible, with the cultivator; and the man who sets the plants must bear this in mind and keep his row narrow—that is, he must *gradually* widen the bed out to 18 inches or 2 feet. Of course, some very thrifty plants will make the row a little wider at some points than it is at others; but it can be gradually

widened as the growth of any part of the bed demands.

Thirdly, the one who spaces the runners should keep constantly in mind that he is to fill up vacancies. If one of the original plants should die, by stretching runners straight out toward the spot it occupied, from each side, the vacancy can very soon be filled up; and during a favorable time, say just after a rain, some of the oldest and best-rooted plants can be taken up with a trowel, and moved to a part of the row where more plants are greatly needed. Now, this is not a difficult matter, neither does it require a great amount of labor, to have a nice stand of plants at no place being greatly crowded, and at no place having very many vacancies. I said I had tried a great many men and boys. I have not tried a smart *woman* yet; but if I don't have better success, I believe I shall try it. The trouble is this: Almost everybody I set at it gets along too fast. He says the strawberries are all done. I go out and look at a row; but before I have gone a rod I will find plants taking root not two inches from each other. I will find altogether too many plants at one side of the old plant, and too few, or none at all, on the other side. Then there will be runners sending out their white roots that have not been put in the ground at all; a good many plants right out in the path of the cultivator, when there was *plenty* of room to place them either at the right or the left—at least, very much *more* out of the way than where I find them. I suspect the trouble is this: The one who does the work is not particularly interested in the strawberry business, and his mind is on something else. Dear friends, it is next to impossible to do any sort of work well and thoroughly unless the work in question occupies all your thoughts, all your time, and all your attention. After the above prelude I have something to tell you.

Last week I had a splendid wheelride right in the month of January. I was attending a farmers' institute at Ada, Hardin Co., Ohio. While there I got acquainted with Henry Young, the originator of the Enhance strawberry. It is now one of the prominent strawberries before the people. It is a perfect berry, very prolific, beautiful in color, a strong grower, free from rust, and, in short, would be a model berry were it not for its awkward shape, and that some object to its tartness. This latter quality, however, makes it especially desirable for canning. The shape, however, has with many rather thrown it into the background, although the berries are about as large as any of the newer sorts. Well, I was greatly pleased to see friend Young's plantation, even in the month of January. This Enhance strawberry is his pet—his child. He loves it; and, as a consequence, it does wonderful things under the training of his loving hands. He too has met the same problem I have figured above, and he has solved it—at least, he has invented a way by which even a stupid man, or

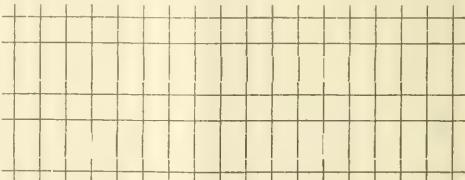


FIG. 1.—MARKING OUT THE GROUND.

Please notice, the simplest and most accurate way of marking the ground will probably be to mark your whole field, marks 18 in. apart each way—that is, mark it lengthwise and then crosswise. Now commence setting your rows lengthwise of the lot. Set two rows; skip one for a path; two more; skip one, and so on.

one with his mind a part of the time on something else, might set out a bed so as to give a perfect stand. He does it this way: He sets out his plants in double rows, and this is done by setting the plants 18 inches apart each way. Now, this double row is 3 feet from the next double row. Fig. 1 will show how he marks out his ground.

After the ground is marked as above, with any sort of marker, you are ready to put out your plants. The path for picking the berries or for running the cultivator is just a yard wide. The plants, after the plantation is put out, are 18 inches apart each way. Let me show you some stars standing just as the plants stand when they are growing nicely, before putting out any runners:

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FIG. 2.—PLANTS AFTER THEY ARE SET OUT.

Now a word about cultivating. The broad spaces, or the paths a yard wide, of course can be cultivated without any trouble; and if you set your plants with a spade, on the plan given by Dan White, you can run the cultivator within an inch of the plants on each side, without injuring them. As the rows between the plants are only 18 inches wide, you will probably do them easiest with a wheel-hoe. Friend Young uses a wheel scuffle-hoe. With a horse trained to the business, and a cultivator that will shut up narrow, I have sometimes done quite a good job of cultivating where plants were 18 inches apart. Please notice, before the plants have put out any runners, you can, with the horse-cultivator and the hand-cultivator, go through them both ways, so as to cultivate close up to each plant on four sides. By this means an acre of plants can be kept almost perfectly clean with modern cultivators and nothing else. Not only this, we can break the crust after every rain so quickly and so easily that we can afford to keep the ground loose and mellow, banishing all weeds at the same time that we do the stirring; and there has never been any thing invented, and in my opinion there never will be, to get great crops of any sort of fruit like this mellow, soft loose soil. So far so good; but when the runners put out and begin to take root, what then? Here is what I learned of friend Young's invention: No plants are allowed to take root in the broad path 3 feet wide—that is, not the first season, any way; but when the runners are just right, and begin to take root, your man or boy is taken into the patch with a trowel, and told to set a good plant about half way between all the old plants and one in the center of the square. After he has done this he is to cut off all the others. Let us have another diagram to make this plain. We have placed the stars a little further apart, so you can see better what you are doing.



FIG. 3.—HOW TO PLACE THE RUNNERS.

The large stars represent the original plants, and the small ones the new plants at the end of the runners. This, you will notice, makes a matted row, with the bearing plants just 9 inches apart each way. This is a little further apart than what Terry directs; but with the

strong thrifty Enhance, the space is not any too great. Each square contains nine bearing plants; and each bearing plant should give a great cluster of immense berries. If your plantation is made either in the spring or fall, your first crop will be like cut Fig. 2; and it will be an easy matter, with the horse-cultivator in the three-foot path, to keep this matted row clean, for the plants stand like hills of corn, except that the hills are only 9 in. apart, and you can work them with a narrow hand-cultivator, or you can use a hoe. Then comes the question, How many crops shall we get from this beautiful plantation before plowing it up? Mr. Young thinks it pays to get two crops; and he sometimes gets three. If you work for a third crop, after the first crop is picked, clean out your bed thoroughly, then let the runners set where they choose. Just let the whole plantation grow up to a thick mat of vines, leaving a 2 or a 2½ foot path for the pickers. Through this path, of course, you keep the cultivator going. After you have secured the crop from this solid matted row, then turn strawberries, weeds, and every thing, all under, the very day you do the last picking. That is, you ought to do it the very day, if you are going to work up to the highest notch of high-pressure gardening.* Now, friend Young goes to work and plants strawberries again, because his whole ground is used constantly for strawberries exclusively, or almost so. Meantime, however, he is pretty well convinced that some other crop should be put on before planting again for strawberries; and, by the way, you can get a good crop of cabbages, wax beans, early sweet corn, and ever so many other things, after turning under your strawberries. You may remember that, last season, I got a splendid crop of Freeman potatoes after the strawberries were all picked.

THE TIMBRELL STRAWBERRY.

In a little sheet called *Specialties for 1895*, published by the introducer of the Timbrell strawberry, we clip the following:

The Timbrell is a strawberry that has surpassed all expectations, yet not half its merits have been told. Each mail brings to us the cheering news that those who have planted it the past season can not speak too highly of it. Never has a new fruit so quickly become such a general favorite, succeeding so well in every locality, and never has there been such a run for plants as on Timbrell. We could not by any means supply the demand last spring.

There is no berry in existence to-day that includes the same combination of merits attained in Timbrell. Indeed, we say without fear of contradiction that there are not six berries on the market that combine the good qualities possessed by Timbrell alone. Hence you get in Timbrell the same points that you would get in half a dozen of the best varieties of the day. We claim still more: There is no variety in existence that can compare with Timbrell in quality, healthiness, vigor, and large average size; and there is but one other that equals it in productiveness, though it is soft and of poor quality.

You will notice in the above that not a word

* Please notice, in fall planting the routine would be something like this: Use potted plants; in fact, this is the way friend Young always does, for he is a greenhouse man, and handles pots every day of his life. Use potted plants, and the next summer you will get part of a crop of immense-sized berries. After fruiting, place the runners as in Fig. 2, and the second summer you will get a full crop—all large fine berries. Gather your fruit; get out the weeds, then let the whole plantation have pretty much its own way. Run the cultivator, of course, and do as much hand weeding as you can afford to do, more or less; then the third summer you will have an immense crop of berries as before; but a great many of them will probably be small, because the beds are too much crowded. Pick as long as it pays to bother with them, then get them under the sod, and have your field clean and lovely once more.

is said in regard to the objection made by the Ohio Experiment Station; viz., the peculiar blotches of white when the berry is fully ripened. Of course, the originator does not have very much to say in regard to the *appearance* of the berry; but is it fair to give a new berry such a recommendation as the above, after the decision that has just come out from the Experiment Station? I really hope the plant *will* have all the *good* qualities claimed for it in the above. The introducer of any new fruit, who mentions all of its good qualities and entirely *omits* the objectionable, will certainly hurt himself in the end a good deal more than he will gain, even *should* he succeed in disposing of his stock of plants at a good figure; and the latter is to be doubted.

TOMATOES FROM THE SEED IN 26 DAYS.

Last April I mentioned purchasing a package of seed of F. B. Mills. These were given the same attention that we give our other tomatoes, but they were little if any earlier than those we have already in the market. If any of our readers have had a different experience, we should be glad to hear from them; but it strikes me that any seedsman who advertises extensively that he has a strain of tomatoes that has given ripe fruit in 26 days after planting, will do himself an injury that it will take him many years to get over.

CRIMSON CLOVER SOWN THE LAST OF SEPTEMBER.

Our stand at this date, about the middle of January, is almost perfect. On the creek-bottom ground the clover is as green as if it were spring, and not a plant has been disturbed, although we have had several freezes almost down to zero when the ground was bare. I confess it is a great surprise to me. But the roots, after the fall rains, went away down deep, and spread out through the soil. If it goes through until April like this, crimson clover will certainly be one of the greatest boons that has ever come to the cause of agriculture. Just think of it! if, after taking off a crop in the fall, we can sow clover and get a good stand to be cut or turned under in time for potatoes or corn the following spring, we shall be almost a year ahead. Reports seem to indicate that this clover started in the fall, and turned under in the spring, is almost if not quite as good as a crop of red clover that has had over a whole year to grow.

GREENHOUSES, HOT-BEDS, AND COLD-FRAMES FOR FLORIDA.

Friend Selser tells us they do not have any such thing down there; but he says, also, he saw two carloads of garden-seeds from Chicago, going to Florida to plant new stuff where the other was killed. Now look here: About Christmas time they were selling ripe tomatoes; but before the new year had dawned, every tomato-plant was killed, root and branch. Are these Florida folks going to plant tomato-seeds, and wait through the very best of the season for more plants to grow? Are there no reserved plants kept under glass, or even under cotton sheeting, to plant out in the fields, and to come into bearing in a few weeks, instead of waiting for the slow process of growing things from the seed itself? If so, then I think Florida is just where A. I. Root is wanted, and perhaps just *now* is the very time they need him most.

THE WEATHER BUREAU AND THE FLORIDA ORANGES, ETC.

I suppose most of our readers know, as a matter of course, of the millions of dollars' worth of oranges, fruits, and vegetables lost by the recent cold wave in Florida. The clerk of the Weather Bureau says that telegrams were sent

all over; cold-wave flags were up on Friday morning, Dec. 28, announcing the blizzard that came on the 29th. The telegrams and daily papers show that full warning was given of the approaching cold wave 24 hours in advance; but notwithstanding this, little or no provision was made for the coming storm. It really gives me pain to notice how indifferent and stupid many seem to be in making use of this wonderful invention of modern times. I often talk with people in regard to important business transactions; but when the weather question comes in, it really pains me to hear them say, again and again, that they have not even looked at the weather-signals floating almost above their heads. Worse than this, there is a sort of foolish skepticism in regard to the ability of the department to predict the weather. But few seem to know that we can now tell about an approaching cold wave or storm almost as well as we can predict the coming of a train that starts, say, from Chicago and will reach Cleveland or New York at a certain time. It is our business (as displymen for Medina) to keep a record every day of the weather-predictions and the actual weather as it turns out. In the month of December our clerk recorded only *two* noes. All the rest of the predictions, both in regard to the *weather* and the *temperature*, were "yes," "yes," from the beginning of the month to the end.

In a recent copy of the *Rural New-Yorker* the editor asks how much the Weather Bureau was worth to farmers. The only response I have noticed was something like this: A man said it was worth a good deal to him; because, when the signal said "storm," he always expected fair weather, and *vice versa*. Now, this might have been well enough for a joke, but it was an absolute falsehood; and I protest against such falsehoods having a place in a good paper. If the editor's sanctum is where he can get his eyes on the weather-signals as they are run up, he can, with a pencil and paper, verify the predictions himself. In a recent storm on the lakes, millions of money and hundreds of lives were saved because the sailing crafts all stayed in the harbor on account of the predictions of the Weather Bureau. One vessel decided to disregard the storm-signal, and was lost, crew and cargo. Now to go back to the oranges.

Had our good friends in Florida gone to work picking their fruit on Friday morning, they might have saved millions of dollars; and thousands of people who are now almost bankrupt might have been getting the big prices that oranges are bringing at the present time. I know what I am talking about, for a bee-keeping friend, Mr. W. A. Sesler, is with us here to-day, and he has been all over Florida purchasing fruit, both before the terrible freeze and after it, and he was right in the heart of the orange regions when the freeze came.

USING SEEDS ONE YEAR OLD, ETC.

I have said before, that there are a good many times when I would give more for old seed that gave me a good crop the preceding year, of just what I wanted, than for any thing I could buy in the way of new seed. The following, on a postal, illustrates the point:

Mr. Root:—Have you any of the Golden Self-blanching celery seed left over from last spring, of the lot that I got that I lb. from in my seed order of Feb. 23d? I should like to get some of the same stock and lot.

Dundee Lake, N. J., Dec. 14.

HERMAN HILLMAN.

As soon as we heard from him we told him how much we had left of that very same stock. Here is his reply:

Find inclosed a check for \$3 worth of that seed

you have left over from last year's supply. If there is more than my check might cover, send it along and send bill. Send by mail. I will send you quite an order next spring for seeds. I found them to be as you represented.

Dundee Lake, N. J., Dec. 20. HERMAN HILLMAN.

Perhaps I may as well say that we are now keeping a careful record of all the seed we purchase (especially *whom it came from*), and we try make to at least a small sowing of every thing ourselves. Then we watch carefully for reports from others. The fact that a certain kind of seed *germinates* all right is but a small part of it; for really no one can tell whether the seed is just what he wants until the crop is *matured*. Our experience is, that a very large part of the seeds used for market-gardening germinate almost as well the second year as the first. Beans and corn—especially the latter—are liable to germinate, of course, a smaller per cent; but I have tested peas, purposely kept four or five years, and found little or no difference in germination, and none in the maturing of the crop. This may not, however, always be the case. Our experiment stations have, however, I believe, made some experiments in this line. I should like to have the market-gardeners tell us the result of their trials of different seeds tried the second year, or even the third. Of course, you are well aware of the great advantage in having some seed that you have raised a crop from (and a crop to your liking) the previous year. It is most specially desirable with such a plant as celery, to be sure that the fault (such a fault as sending up a seed-stalk, etc.), is in the soil, weather, etc., and *not* the fault of the seed.

THE CHEAP ONION-SEED, ETC.

I bought a large lot last year in Iowa, at 63 cts. per lb., while most seedsmen asked 90 at wholesale. The seed at 63 cts. was every bit as good as any I could get, and everybody was pleased. I find I can not get any as cheap this year, however, and do not like to buy any seed in a promiscuous way. I got a bag of Wardell's kidney wax beans the past season that were about all green-podded, and a source of a good deal of disappointment and vexation. They tell me that the stock was short, and they had to buy some, and suppose some one deceived them.

Sanborn, N. Y., Dec. 10. CHR. WECKESSER.

THE PARKER EARLE STRAWBERRY—A GOOD REPORT FROM IT.

Mr. Root:—Those Parker Earle strawberry-plants I got of you a year ago last September have done finely. We got 50 quarts from the 100 plants you sent. They did not make any new plants the first fall.

I have a nice lot of plants this year. Michel's Early does not do any thing for me; but one mile from here, on different soil, it does nearly as well as the Crescent. I have five of those nine best kinds, and one better—a seedling that my brother started nearly eighteen years ago. He has never tried to introduce it.

Parkman, O., Dec. 31. F. P. CLARK.

Friend C., I am a little astonished at the above. I was getting somewhat out of conceit with the Parker Earle after the way it "tumbled" during such a severe drouth as we had last season; and I am surprised to hear you say that it made no plants. Perhaps this was the secret of your great yield from it. I know Peter Henderson talks about getting a quart from a single plant; but I do not believe that I ever in all my life had a pint per plant right through from a row of 100 plants. And I am glad of what you say in regard to Michel's Early. This shows how much difference there can be in localities only one mile apart. If you have got a seedling better than the nine selected by our Ex-

periment Station, perhaps you had better let us try it. But, oh dear! it makes my back ache to think of the numbers we *have* tried, and found to be no better if as good.

TOMATOES AND SWEET POTATOES.

The "Buckeye State" tomatoes beat any thing in size ever seen here, even the Ponderosa, and in quality the Ponderosa is not to be compared to it. The second picking was 22 tomatoes (no thinning or selecting); weighed 17 lbs. 12 oz. It seems to me you would take hold of the Bunch (or Vineless) sweet potato. We like them better than the ordinary varieties, and they don't run.

E. A. BOAL.

Hinchman, Berrien Co., Mich., Dec. 12.

Thanks for your report. We have sold the plants of the Vineless sweet potato for two years past; but our soil is so poorly adapted to sweet potatoes that we purchase most of those we sell, in Baltimore.

DIGGING POTATOES BEFORE THE VINES ARE MATURED, DEAD, OR DRIED UP.

There, now, A. I. Root, on page 31 you have given a good pointer on growing potato-plants, and I just want to tell how those potatoes turned out that you told me, when here last October, not to dig until the vines were dead. You see I had taken from thrifty plants 12 side-shoots, each having a few roots, and I planted them on the 3d of July. One plant died; the 11 gave 11 lbs. of potatoes; and the very hill that I was about to dig up when you stopped me gave 3 lbs. Now, then, who will raise the most side-shoot potatoes of the Craig seedling, in 1895?

G. J. YODER.

Garden City, Mo., Jan. 5.

THE NEW CRAIG SEEDLING POTATO.

As orders continue to come in, and the potato seems to be receiving much favor, I begin to be quite a little anxious about its outcome. You see friend Craig, myself, and one of his neighbors, are almost the only ones who have given it a trial. Oh, yes! here is this much from Wm. Henry Maule. I take it with a letter from friend Craig:

I received Maule's report the day I mailed you my last letter. He says: "Your potato is a good one, very similar to Vick's Maggy Murphy; table qualities good." The Maggy Murphy is not given in any catalog I have. I will try to get some, and test them this year along with mine; but I am sure mine will prove the best, on our soil at least. Mr. Maule does not give the yield of either variety.

Zimmer, O., Dec. 22.

GEO. E. CRAIG.

In my description there is one thing I forgot to mention. The boys dug the potatoes while I was away, as you know. When that heavy frost came so early they covered them with sheets and blankets; but the freeze was too severe, and it killed the potatoes notwithstanding. Well, now I should have waited until the vines were entirely dry before digging. Perhaps it would have made but little difference, however. At any rate, the quality of the potatoes was extra—I believe a little better than those received from friend Craig himself; but that may be only a notion. Well, one day when we were down near where they grew, my good German friend and helper, Ben, pointed to the fence and asked me if I had seen that potato-vine. The root was stuck in a crack in the top of a fence, perhaps higher than my head, while the top of the vines reached down to the ground, with great spreading branches. As quite a few have asked for a dollar's worth of these potatoes by mail, we have decided to send 4½ lbs. for \$1.00. I should like to make it 5 lbs., but we can not quite do it and get peck prices. I omitted to say that one pound by freight or express will be 15 cts; 4 lbs., 50 cts.

PATENTS

Careful attention given to the prosecution of business before the U. S. Patent Office. All business treated as *strictly confidential*. No charge made for services in prosecuting application, until the patent is allowed. Send for "INVENTOR'S GUIDE."

FRANKLIN H. HOUGH,
925 F STREET, WASHINGTON, D. C.

STAHL'S EXCELSIOR



Spraying Outfits kill insects, prevent leaf blight and wormy fruit. Insure a heavy yield of all fruit and vegetable crops. Thousands in use. Send 6 cts. for catalog and full treatise on spraying. Circulars free. Address **WILLIAM STAHL, QUINCY, ILL.**

MUTH'S HONEY EXTRACTOR.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives,
Honey Sections, Etc., Etc.
Perfection Cold-blast Smokers.

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P. S. Send 10-ct. stamp for "Practical Hints to Bee-keepers."

SIMPLEX HATCHER & BROODER Combined.



THE MOST PERFECT Incubator Made. Hatches every egg that a hen could hatch. Regulates itself automatically; Reduces the cost of poultry raising to a minimum. Send for Illustrated Catalogue. **160 Egg size \$16.00.** **SIMPLEX MFG. CO., Quincy, Ill.**

Promptness is What Counts.

Honey-jars, Shipping-cases, and every thing that bee-keepers use. Root's Goods at Root's Prices, and the Best Shipping-point in the Country. Dealers in Honey and Beeswax. Catalog free.

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Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,

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Sprout Brook, Montgomery Co., N. Y.



SEEDS Awarded World's Columbian Grand Prize Medal.

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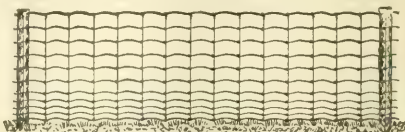
H. W. Buckbee, Rockford Seed Farms,
Post Office Box 614

Please mention this paper.

BEGINNERS.

Beginners should have a copy of the Amateur Bee-keeper, a 70-page book by Prof. J. W. Rouse. Price 25 cents; if sent by mail, 28c. The little book and the Progressive Bee-keeper (a live progressive 28-page monthly journal) one year, 65c. Address any first-class dealer, or

LEAHY MFG. CO., HIGGINSVILLE, MO.



SLOW BUT SURE.

In these days of rapid transit, 2 1/2 miles per hour would be called **slow**, but if the traveler was making as he went along, the most perfect, complete, self-regulating wire fence ever heard of, it would alter the case. Our factory, with its increased capacity, will turn out that amount per hour, and as we run 24 hours per day in the spring, **64 miles** will be the **daily product**. The demand always keeps up with the supply.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

TAKE NOTICE!

BEFORE placing your orders for **SUPPLIES**, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc.

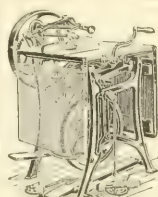
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GEO. H. STAHL, 114 to 122 S. 6th St., Quincy, Ill.



ONE MAN WITH THE UNION COMBINATION SAW

Can do the work of four men using hand tools, in Ripping, Cutting off, Mitering, Rabotting, Grooving, Gaining, Dadoing, Edging-up, Jointing Stuff, etc. Full Line of Foot and Hand Power Machinery. Sold on Trial. Catalog Free. 1-24ci

SENECA FALLS MFG. CO.,
44 Water St., Seneca Falls, N.Y.

In responding to this advertisement mention GLEANINGS.

TRUSSES on 30 Days Trial. Easy, durable and cheap. A radical cure effected. Send for sealed catalogue. **EGGLESTON TRUSS CO., Masonic Temple, Chicago, Ill.**



HURRAH FOR FLORIDA.

ON Tuesday evening, Jan. 15, Constance and myself expect to start for Florida. During the past year she has been working in the office as shorthand writer and typewriter; so I shall have somebody along to whom I can dictate my Notes of Travel. Of course, I do not expect her to follow me in all my raids on the wheel, etc.; but she will be ready to "take down" when I get around full of interesting talk to you about. A. I. R.

CATALOGS PRINTED AT THIS ESTABLISHMENT.

We have just finished A. T. Cook's seed catalog for 1895, and I think the job does credit both to friend Cook and ourselves. We have printed his catalogs for several years, but never so good a one as this. Inasmuch as I have watched the growth of friend Cook's seed business for almost twenty years, perhaps I feel more than a usual interest in it. If you wish to see a new catalog, address A. T. Cook, Hyde Park, N. Y.

A VALUABLE STRAWBERRY CATALOG.

I have been greatly pleased by reading clear through from beginning to end a little catalog by C. N. Flansburg, Leslie, Mich. One refreshing thing about this is, that Mr. C. tells us how nearly all the plants he advertises have behaved on his own grounds; and where they have faults he evidently is as ready to tell about those faults as he is of the good qualities. Now, a good many who advertise strawberry-plants have nothing in their catalog whatever from individual personal experience. Can't a good many of us gather a moral right here?

ELECTRICITY.

I do hope our people will give this periodical a generous support. It tells you exactly the truth in regard to what electricity is doing in the world today; and, more than all of that, it sifts truth from falsehood, and sounds timely warnings against the stupendous frauds that are being continually put upon the people in the way of electricity for curing human ailments. Still further, it exposes frauds along this line, that do not have a bit of electricity about them. The price is only \$1.00 a year. Address *Electricity*, 6 Park Place, New York.

HONEY MARKET.

Our supply of extracted honey is very low, and we should like to get track of some more of it, in 60-lb. cans, not too far away. If any of our readers have such to offer we shall be pleased to hear from them. We have also placed out on commission very nearly all of the alfalfa comb honey we have been offering the past few months. We have reserved a little, which we offer to those in want of choice comb honey, at 15c per lb., in 100-lb. lots or more.

NEW PRICES ON SEEDS, ALSIKE, ETC.

The seed market changes so much that we are forced frequently to make new prices on many of the staple seeds. The following table gives the prices as they will appear in our price list now going to press. How long we shall be able to hold these prices will depend on the market. Most of the prices, you will notice, are lower than last quoted. Bag to ship in always included.

Name.	Price—1-lb.	Pk.	½ Bu.	1 Bu.	2 Bu.
Alsike clover seed	16	\$2 10	\$4 10	\$8 00	\$15 80
White clover seed	30	4 00	7 60	15 00	29 80
Alfalfa clover seed	14	1 80	3 40	6 70	13 00
Sweet clover or Bokhara	14	1 70	3 20	6 25	12 00
Scarlet " or German	12	1 30	2 40	4 70	9 00
Peavine " or Mammoth	16	2 00	3 80	7 20	14 00
Japanese buckwheat	5	40	70	1 20	2 20

SECOND-HAND FOUNDATION-MACHINES.

Since our notice of these a month ago we have sold half of them, and are negotiating with parties for some of those which remain. Three more machines discarded from our wax room are added to the list. Those unsold at the present time are as follows:

Six-inch hex., No. 1461. Price \$10.00. This is in good condition, and just right for thin surplus foundation.

Six-inch hex., No. 1631. Price \$10.00. In good condition, and will make thin surplus foundation 10 ft. to lb.

Six-inch hex., No. 1565. Price \$12.00. This is in good condition, with very light wall, and will make extra thin foundation about 11 ft. to lb.

Six-inch hex., No. 1669. Price \$10.00. This has made a good many hundred pounds of thin surplus foundation in our wax-room, and will still do good work; has a few slight blemishes which are no detriment practically, but hardly suitable for the high standard of excellence attained by our foundation.

Ten-inch hex., No. 1640. Price \$12.00. This has been used for light brood, and is discarded for same reason as above; is an excellent mill otherwise.

Ten-inch hex., No. 1638. Price \$7.00. This is a new machine, and all right, except for one thing: The sheets do not come from the rolls easily, and it is therefore a source of some annoyance to use it.

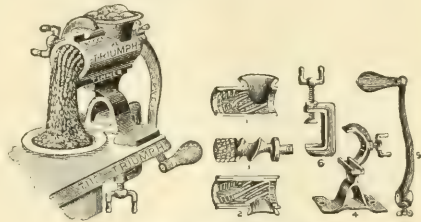
Ten-inch round cell, No. G. G. Price \$6.00. This is old-style heavy cell wall, and makes foundation something like that from the Given press.

Ten-inch round cell, No. I. I. Price \$8.00. Similar to No. G. G.

All the above machines are our own make. We have also the following:

Hex. Vandervort, 10½-inch, No. H. H. Price \$8.00. Will do well for heavy brood.

Samples from any of above mills sent on application to those interested.



TRIUMPH MEAT-CUTTER.

Family meat-cutters are a very great convenience, and well nigh a necessity. Certain it is, that, if properly used, they will pay for themselves in a very little time in any family of ordinary size. There is hardly another item in the list of provisions for the family board that counts up faster than the meat-bill; and any thing that will serve to economize in the meat supply, and at the same time render much of it more edible, is certainly worth investigating. The Triumph meat-cutter, which we offer, is different from most of the old-style choppers, as will be seen from the illustration. It is also very easily taken apart to clean. We can furnish the Triumph for \$1.50 each. Special prices in quantities to agents.

CONVENTION NOTICES.

The annual meeting of the Ontario Co. Bee-keepers' Association will be held in Canandaigua, N. Y., Jan. 23, 26, 1895. Come early, every one. RUTH E. TAYLOR, Sec., Bellona, N. Y.

The 11th annual meeting of the Wisconsin Bee-keepers' Association will be held in the Capitol, Madison, Feb. 6 and 7, during the convention week of the State Agricultural Society, thus securing reduced railroad fare. Let all interested attend. Programs sent to as many as possible, but come whether you get one or not. H. LATHROP, Sec., Browntown, Wis.

The California State Bee-keepers' Association will hold its fourth annual meeting on Tuesday and Wednesday, Feb. 5 and 6, at the Chamber of Commerce, in Los Angeles, corner Broadway and Fourth Sts. Programs ready. J. H. MARTIN, Sec., Bloomington, Cal.

My Strawberry Catalog

FREE to all.

C. N. Flansburg, Leslie, Mich.

H. C. SIMPSON,

BREEDER OF ITALIAN BEES AND QUEENS.

And dealer in Bee-keepers' Supplies.

Send for price list.

CATAWBA, S. C.

Revised Price List of Garden Seeds for Jan. 15.

Please notice that any or all seeds mentioned below are sold in five-cent packages, postpaid by mail. For 10 papers ordered at one time, 40 cts.; 100 papers, \$3.50. Of course, scarce and high-priced seed will necessitate making only a very small amount of seed in a package; but by far the greater part of them contain a full half-ounce of good fresh seeds. By comparing these packages with those you get of many of the seedsmen you will notice the liberal amounts we furnish for only 5 cts. It is true, we do not give presents or cash prizes; but we believe the most intelligent people of the present day would prefer to have their money's worth of what they ordered, rather than to compete for a prize. The five-cent packages are sent postpaid; but the price of all other seeds does not include postage; therefore, when you order seed by the ounce or pound, allow postage thus: 9 cts. per lb.; 5 cts. per $\frac{1}{2}$ lb., or 1 ct. per oz. Peas and beans by the pint and quart must also have 8 cts. per pint or 15 cts. per quart; for corn, add 12 cts. per quart for postage. Postage to Canada is double the above rates. One-fourth ounce, pound, or peck, will be sold at ounce, pound, or peck rates unless otherwise specified. In the enumeration below, no description of the seeds is given, as you may notice. Our complete catalog, with full description, will be mailed on application if you have not already received it.

ASPARAGUS.

Asparagus, Palmetto. Oz. 5c; lb. 50c.

Asparagus Roots. 2 year old. Palmetto, 10 for 10c; 75c per 100; \$6.00 per 1000. 2-year-old roots not available. 1 year roots, 10, 10c; 100, 50c; 1000, \$4. By mail, add 5c for 10; 25c for 100.

BUSH BEANS.

Henderson's New Bush Lima Bean. $\frac{1}{2}$ pt. 10c; qt., 30c; peck, \$1.75; bushel, \$6.50.

Kumler's Bush Lima. Qt. 40c; pk. \$2.50.

Burpee's Bush Lima. Pt. 25c; qt. 40c; pk. \$2.50.

Kidney Wax. Pt. 15c; pk. \$1.30.

White Kidney, Large. Pt. 10c; pk. \$1.10. Bu., \$4.00.

York State Marrow. The best field bean. Pint, 10c; peck, \$1.00; bush, \$3.50.

POLE BEANS.

Extra-Early Lima Beans. Price, $\frac{1}{2}$ pt., 10c; qt. 30c; peck \$2.00.

King of the Garden Lima. $\frac{1}{2}$ pt. 10c; qt. 30c; peck, \$2.00.

All of our beans will be furnished in 5-cent packages; but where they are to go by mail, postpaid, of course the above packages will have to be quite small. If wanted by mail, add 8c per pt. or 15c per qt. for postage.

BEETS.

Eclipse. Oz. 5c; lb. 40c; 5 lbs. \$1.50.

Laue's Improved Sugar. Oz. 5c; lb. 25c; 5 lbs. \$1.00.

Long Red Mangel. Oz. 5c; lb. 25c; 5 lbs. \$1.00.

CABBAGE.

Select, Very Early Jersey Wakefield. Stock seed. Oz. 20c; lb. \$2.50.

Henderson's Early Summer. Oz. 20c; lb. \$2.00.

Pottler's Brunswick. Oz. 15c; lb. \$1.75.

Excelsior Flat Dutch. Oz. 15c; lb. \$1.50.

Perfection Drumhead Savoy. Oz. 15c; lb. \$1.50.

Large Red Drumhead. Oz. 15c; lb. \$2.00.

CARROTS.

Early French Forcing. Oz. 5c; lb. 60c.

Orange Danvers, Half-Long. Oz. 5c; lb. 60c.

CAULIFLOWER.

Henderson's Early Snowball. Raised by H. A. March. $\frac{1}{2}$ oz. 25c; $\frac{1}{4}$ oz. 40c; oz. \$1.50.

CELERY.

Henderson's White Plume. Oz., 20c; lb., \$2.00.

Golden Self-Blanching Celery. Oz., 20c; lb., \$2.50.

New Rose. Oz. 20c; lb. \$2.00.

Dwarf Golden Heart. Oz. 15c; lb. \$1.75.

CORN (FOR TABLE USE).

Corn we sell at 5c per half-pint package; but at this price purchasers must pay the postage, which is 3c for each half-pint. If wanted in larger quantities the price will be 15c per quart, 75c per peck, or \$2.75 per bushel.

Cory's Extra Early.

Ford's Early Sweet.

Late Mammoth Sugar.

Country Gentleman, or Improved Shoepeg.

CORN SALAD.

Oz. 5c; lb. 50c.

CRESS.

Extra Curled, or Pepper Grass. Oz. 5c; lb. 40c.
Water Cress, true. Oz. 30c; lb. \$3.50.

CUCUMBER.

Early Frame. Oz. 5c; lb. 50c.

Improved Early White Spine, or Arlington. Oz. 5c; lb. 50c.

Green Prolific, or Boston Pickle. Oz. 5c; lb. 50.

LETTUCE.

Grand Rapids Lettuce. Oz. 15c; pound, \$1.75; 5 lbs. \$7.50. *This seed is from the originator, Eugene Davis.*

Boston Market (or White-seeded Tennis-ball). Oz., 10c; lb., \$1.00.

Henderson's New York. Oz. 10c; lb. \$1.00.

MELONS, MUSK.

Casaba, or Persian Muskmelon. Oz. 5 cts.; lb. 60c.

Extra Early Citron. Oz. 5c; lb. 60 c.

Banana. Oz. 5c; lb. 60c.

Emerald Gem. Oz. 10c; lb. 65c.

Miller's Cream, or Osage. Oz. 10c; lb. 60c.

MELONS, WATER.

Phinney's Early. Oz. 5c; lb. 40c.

Landreth's Boss. Oz. 5c; lb. 40.

MUSHROOM SPAWN.

Agaricus Campestris. Single lb., 15 cts.; 5 or more lbs., 12 cts. per lb., 10 lbs. or more, 10 cts. Directions for raising mushrooms sent with each order.

ONION.

Yellow Globe Danvers. Oz. 10c; lb. \$1.00; 5

Large Red Wethersfield. The standard red onion. Same prices as above.

Silverskin, or White Portugal. Oz. 20c; lb. \$2.40.

Prize Taker. Oz. 20c; lb. \$2.00.

White Victoria. Oz. 20c; lb. \$2.50.

American (Extra Early) Pearl. Oz. 25c; $\frac{1}{2}$ -lb. \$1.50; lb. \$2.75.

Extra Early Red. Oz., 15 cts.; $\frac{1}{2}$ lb., 35 cts.; per lb., \$1.00.

ONION-SETS.

By mail 10 cents per quart extra.

Yellow Danvers. Qt. 20c; peck, \$1.00; bush. \$3.50. Large size Yellow Danvers, one-half above prices.

Silverskin. Qt. 25c; peck, \$1.25; bush. \$4.50.

Extra Early American Pearl. Qt. 25c; pk. \$1.25 bush., \$4.50.

Winter, or Egyptian Onion Sets. Prices, 5c per qt., or 35c per peck; \$1.00 per bush.

White Multiplier. Price 10c per pint; 15c per qt; pk. \$1; bu. \$3.50. By mail, 10c per quart extra.

PARSNIP.

Improved Guernsey. Oz. 5c; lb. 25c; 10 lbs., \$2.00.

PARSLEY.

Fine Curled or Double. Oz. 5c; lb. 50c.

PEAS.

Alaska. $\frac{1}{2}$ pt., 5c; peck, \$1.00; bush., \$3.75.

American Wonder. $\frac{1}{2}$ pt. 8c; pk. \$1.60; bu. 5.00
Premium Gem. $\frac{1}{2}$ pt. 5c; peck, \$1.00.
Stratagem. $\frac{1}{2}$ pt. 8c; qt. 25c; pk. \$1.50; bu. \$5.
Champion of England. Pint, 10c; pk. 75c; bushel, \$2.50.
Peas by mail will be at same rate as beans for postage.

PEPPERS.

Sweet Spanish. $\frac{1}{4}$ oz. 8c; oz. 20c.
Bullnose. $\frac{1}{4}$ oz. 5c; oz. 15c.
Cayenne. $\frac{1}{4}$ oz. 8c; oz. 20c.

POTATOES.

Monroe Seedling.
 1 lb., by mail, 18c postpaid; 3 lbs., 40c; by freight or express with other goods, 1 lb., 5c; 1 pk., 35c; 1 bush. \$1.00; per barrel of 11 pecks, \$2.50.

Early Ohio.
Everett's Early, 6 weeks.

Early Puritan.
Lee's Favorite.
Rural New Yorker.
Freeman.

Prices of any of the above: 1 lb., by mail, 20 cts.; 3 lbs., 50 cts.; 1 lb., by express or freight, 10 cts.; 1 peck, by express or freight, 50 cts.; 1 bush., \$1.50. Barrel, containing 11 pecks, \$3.50. If potatoes are ordered in the winter we will do our best to protect them from frost, but the purchaser must take all risk. At these prices we make no charge for burlers or packages, but deliver F. O. B. cars here in Medina. Second size, until sold out, one half above prices.

SECOND-SIZED Freemans, while they last, same price as Monroe Seedlings. Our second size this season were raised by T. B. Terry.

Potato-eyes. Any of the above varieties by mail postpaid, 15c for 10; or 80c per 100.

The New Potato, Craig Seedling.

A full description containing all we know in regard to this new potato, will be found in our issue of Dec. 15, commencing on page 939; see also page 929, in the same issue. Prices will be found on this page, just below; and if you have not a December number handy, the whole history of the potato, so far as we have it will be mailed you free on application. We think at least every potato-grower who is interested in a new large potato of most astonishing vigor, and freedom from scab, blight, or any thing of the kind, should test at least a single pound, which will be sent postpaid, for only 25 cts. We shall be glad to furnish you further particulars.

The A. I. ROOT CO., Medina, Ohio.

PUMPKIN.
Early Sugar. Oz. 5c; lb. 40c.

RHUBARB.

Myatt's Victoria. Oz., 10c; lb., \$1.00.
 Roots, 10c each; 50c for 10; \$3.50 per 100. If wanted by mail, add 5c each for postage.

RADISHES.

Early Scarlet Globe. Pkt. 5c; oz. 10c; lb. 60c
Wood's Early Frame. Oz. 5c; lb. 50c.
Beckert's Chartier. Oz. 5c; lb. 40c.
Chinese Rose Winter. Oz. 5c; lb. 40c.

SALSIFY, OR OYSTER PLANT.

New Mammoth. From Sandwich Islands. Oz. 10c; lb., \$1.00.

SPINACH.

Bloomsdale Extra Curled. Oz. 5c; lb. 20c.
 5 lbs. 90c.

SQUASH.**SUMMER.**

Giant Summer Crookneck. Oz. 10c; lb. 50c.

WINTER.

Hubbard. Oz. 5c; lb. 50c.

TOMATO.

Golden Queen. Pkt., 5c; oz., 20c; lb., \$2.50.
Ignotum Tomato. $\frac{1}{4}$ oz 10c; oz. 20c; lb. \$2.50.
Livingston's Beauty. Oz. 15c; lb. \$1.60.
Dwarf Champion. oz. 20c; lb. \$2.00.
Livingston's New Stone Tomato. Oz. 20c; lb. \$2.00. A very fine large tomato for main crop.
Early Ruby. Per oz., 20 cts.; lb., \$2.00.
Buckeye State. Oz., 20c; $\frac{1}{4}$ lb., 60c; lb., \$2.25.
Pear-Shaped Tomatoes. Oz. 20c; lb. \$2.50.

TURNIP.**Extra-Early Turnips.**

Purple-top White-globe. Oz. 5c; lb. 40c; 5 lbs. \$1.50.
Yellow Aberdeen. Oz. 5c; lb. 40c.
Breadstone. Oz. 10c; lb. 50c.
White Egg. Oz. 5c; lb. 40c.

The New Craig Seedling Potato.

For full description of this Potato, see page 959 of this journal for Dec. 15, 1894. Prices: 1 lb. by mail, postpaid, 25 cts.; $\frac{1}{2}$ peck, by freight or express, \$1.00; peck, \$1.75; $\frac{1}{4}$ bushel, \$3.00; bushel, \$5.00; barrel of 11 pecks, \$12.50. The above prices will hold good as long as our stock lasts. All orders by mail will be filled as soon as received. Orders by express will be shipped at once unless ordered otherwise. All orders for potatoes by freight will be filled April 1, or soon after that time, unless directions are given to ship at an earlier date. In this latter case I do not assume responsibility for loss in freezing; but where it is desirable to ship earlier, and customers have bad luck, I expect to help them out so far as I can consistently. In regard to my responsibility I would refer you to A. I. Root. In fact, where it is more convenient you can order potatoes of the A. I. Root Co., instead of sending your orders to me.

GEO. E. CRAIG, Zimmer, Franklin Co., O.

World's Fair Medal

Awarded my *Foundation*. Send for *free samples*. Dealers, write for wholesale prices. Root's new *Polished Sections* and other goods at his prices. *Free Illustrated Price List* of every thing needed in the apiary. **M. H. Hunt.**

Bell Branch, Mich.

"Come Across"



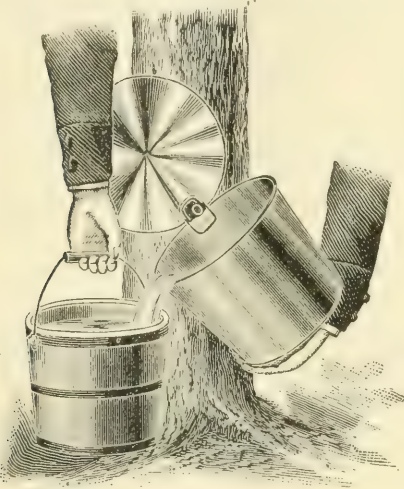
With your address for my new 60-page catalog of hives, etc., for '95. Goods and prices are *all right*.

J. M. Jenkins, Wetumpka, Ala.

Burpee's *Seed Annual* for 1895 is well worth having. Tell to all who plant seeds
 W. Atlee Burpee & Co., Philadelphia, Pa.

Maple-Sugar Supplies.

The time is at hand when those who produce the delicious sweets from the sugar maple must be getting ready. For the best results you must have good clean apparatus of the most approved type, and you really can not afford not to read Prof. Cook's book, "Maple Sugar and the Sugar-bush," which we furnish at 35c. or we will give a copy free to all those who buy sugar-makers' supplies of us to the amount of \$10.00 or more. We do not sell evaporators, but we think we can do you some good on spouts, pails, covers, and cans. We have received a carload of these from the factory, and they are made of American tin-plate. The plates are tinned and made up into cans by the same firm; and by taking a carload we get them at bottom prices. See table below. The pails and cans are machine-made, far superior to hand-made, and guaranteed not to leak.



BUCKET WITH HINGED TIN COVER.

This cut shows the manner of hanging the bucket on the spout, and also the manner of emptying with the hinged tin cover. Most progressive sugar-makers nowadays use covers of some kind.

PRICE LIST OF SAP-PAILS, COVERS, CANS, ETC.

Record sap-spout, \$1.00 per 100.....	\$8.00 per 1000			
1-gal. square cans, \$10.00 per 100.....	\$90.00 "	100 "		
1 gal. square cans, 6 in a box, 85c. per box; \$8.00 for 10 boxes.				
1-gal. square cans, 10 in a box, \$1.30 per box....	\$12.00		for 10 boxes.	
5-gal. square cans, not boxed, 28c. each.....	\$5.00		for 20 cans.	
5-gal. square cans, 2 in a box, 70c. per box.....	\$6.50		for 10 boxes.	
5-gal. square can, 1 in a box, 45c. per box.....	\$4.00 for 10 boxes.			
Grade of tin.	Price per 100.	10 qt.	12-qt.	15-qt.
IC charcoal or bright tin				
sap-buckets, \$14.00	\$15.00	\$17.50		
IX charcoal or bright tin				
sap buckets, \$16.00	\$17.00	\$20.00		
Heavy galvanized sap-buckets.....	19 00	22 00		
IC coke-tin sap-pails.....	13 00	15 50		
IX	15 00	18 00		
Hinged tin covers.....	6 00	per 100		
Reversible wood covers, painted..	4 50	"	100	

The sap-pails in above table, of coke tin, are offered to compete with other cheap buckets you will find in the market. The best are the cheapest in the long run. The tin in these cheap pails is just the same as in the better ones, except the coating, which is much thinner. We guarantee these equal or superior to the other cheap buckets in the market, but, recommend, instead, the higher-priced ones with better coating. The galvanized iron pails are coated after they are put together, and will never rust out. It requires more care to keep them clean.

THE A. I. ROOT CO., MEDINA, O.

KIND WORDS FROM OUR CUSTOMERS.

The hives and sections are beautifully made, and I am very much pleased. JOE L. COOPER.
Nashville, Tenn., Nov. 20.

The sewing-machine I ordered of you Nov. 26 was received Dec. 24 in good condition. It is a daisy, and my wife is more than pleased with it. LEWIS DAMON.
Fitchburg, Mass., Jan. 7.

OUR POTATO BOOK.

Mr. T. B. Terry:—
I consider your book one of the greatest works on agriculture that I ever read. It needs a new title, however. Instead of the "A B C" of Potato Culture it should be called the "A to Z."

W. A. LINN,

Managing Editor *Evening Post*.

New York, Dec. 20.

THE COWAN EXTRACTOR, AND HOW ESTEEMED BY A CUBAN.

I received a few days ago a Cowan extractor, No. 25, through Messrs. Falconer, bearing your imprint. I am glad to express the satisfaction which I feel in regard to the machine, which, perhaps, is the best now in use by bee-keepers. I have promised myself to use nothing but the Cowan in the future.

JOAQUIN CASQUERO BARREDO.

Cardenas Cantel, Cuba.

BEEES AND BIBLE.

By chance I came across some old back numbers of GLEANINGS, which I readily devoured, and, like "Poco," greatly desired more. I consider GLEANINGS superior to any other bee-book, and your Home chats very instructive and entertaining. I think you missed your calling. You thought the Lord said *bees*, and he said *Bible*. I have half a dozen stands of bees; am an enthusiast on the subject, though I am without knowledge or experience in regard to them.

MRS. CARRIE M. ROBERTSON.

Mayview, Mo., Jan. 8.

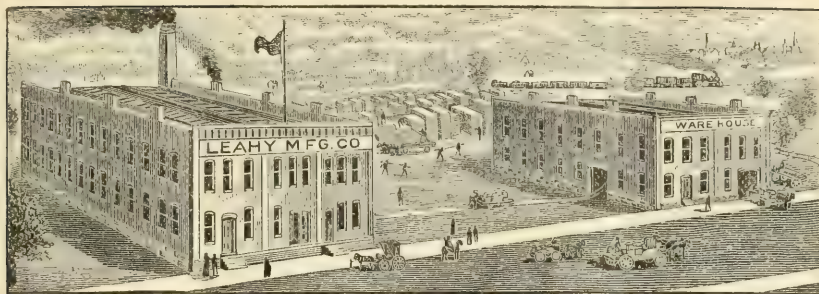
A KIND WORD FROM A "STRAWBERRY-CRANK," ETC.

Mr. Root:—I am pleased to see what perhaps is an outline of your face. You have been at times the only man talked about in my house. My son, at one time, was a bee-crank, purchased the A B C book, and took your journal; but I have the book, also your "Tomato" and "Strawberry" book. Of course, other names are in the book, but I can see A. I. Root in it all. I am in the middle sixties, and have never drank spirits, nor smoked or chewed tobacco; am a strawberry crank, and wish to learn the name of the berry coming nearest to the following description: Fair or good size; dark-red flesh; red through and through; very firm, with flavor very fine, strong acid; of course fairly productive. I wish it for a canning berry. Will you tell me the berry? It will be a great point to gain. I contracted the strawberry symptoms about two years since; have now about six acres under cultivation. I raise the Gandy for market. It would be a fine canning berry if it had dark-red flesh, and was not a little bitter when canned. If you know all about the old Champion, or Windsor, as it is now called, please tell me if it has fine flavor or not. D. F. BROWNS.

Freeport, N. Y., Dec. 31.

Friend B., my impression is that the Warfield comes nearer your description than any other berry we have. The strawberry-growers who read GLEANINGS can, however, correspond with you, if they choose.

In regard to the outline of my face, I am afraid the picture in the berry-book is hardly as much as an outline. If it were not that it is a foolish thing to feel hurt because your picture does not do you justice, I do not know but I should have scolded some about this picture before this. The worst of it is, it shows a scar, or deformity, that does not exist at all. When I first saw it I thought that, perhaps, it was a blur in the printing; but other books show it just the same. Had Judge Biggle given me an opportunity, I would have furnished him a cut that would have made me look at least tolerably respectable in such a crowd of bright able men. Our stenographer suggests, that perhaps the rest feel something as I do; but it seems to me every one must admit that A. I. Root is the *sortiest*-looking chap in the whole crowd.



Largest Factory in the West. **COMPLETE STOCK.**
GOOD SUPPLIES and LOW PRICES, Our Motto.
 We are here to serve you, and will if you give us a chance. *Catalogue Free.* Address
 1-6ei **LEAHY MANUFACTURING CO, Higginsville, Mo.**

BEE-KEEPERS' SUPPLIES FOR 1895.

Such as Dovetailed Hives, Sections, Comb Foundation, Extractors, and every thing else used by a bee-keeper. All late improved goods. Immense stock. Goods sold at wholesale and retail. Write for our

DISCOUNTS FOR EARLY ORDERS.

Alsike-clover and Japanese buckwheat furnished at lowest market price.

Address **JOSEPH NYSEWANDER, Des Moines, Iowa.**

Florida Queens

3-7ei Address until April 15,

bred from my original strain of Maryland Italians, which has given such general satisfaction as honey-producers. Untested queens ready March 1-4, \$1.00 each; 6 for \$5.00. Write for prices on large lots and special circular. Safe arrival guaranteed.

CHAS. D. DUVAL, SAN MATEO, FLORIDA.

16 Years Without a Complaining Letter.

Every Bee-keeper Needs a New

Bingham Perfect Smoker.

LOW PRICES:

Bingham bee-smokers with all the new improvements.

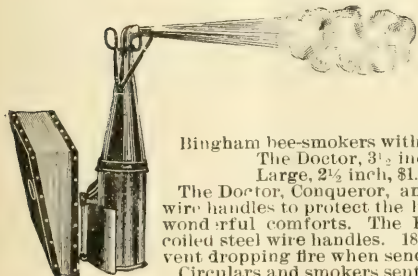
The Doctor, 3½ inch stove, per mail, \$1.75; Conqueror, 3 inch, \$1.50.

Large, 2½ inch, \$1.00; Plain, 2 inch, 70c; Little Wonder, 1½ in., 50c.

The Doctor, Conqueror, and Large, have extra wide shields, and double coiled steel wire handles to protect the hands from heat and soot. These shields and handles are wonderful comforts. The Plain and Little Wonder have narrow shields, and single coiled steel wire handles. 1895 Bingham smokers will all have movable bent caps to prevent dropping fire when sending smoke downward.

Circulars and smokers sent by return mail, also rates per dozen or 100. Address

T. F. BINGHAM, Abronia, Mich.



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RELIABLE SEEDS

Awarded World's Columbian Grand Prize Medal for Purity. Always Fresh and Reliable.

SPECIAL OFFER: For only 10c, I will send 1 liberal package each of New Holland Cabbage and New Dixie Water Melon. Beautiful Seed and Plant Catalogue **FREE.** Address at once **H. W. BUCKBEE, Rockford, Ills.** P. O. Box 614, Rockford Seed Farms.



BURPEE'S FARM ANNUAL for 1895

"The Leading American Seed Catalogue."

A handsome book of 174 pages with many new features for 1895—hundreds of illustrations, pictures painted from nature—it tells all about the **BEST SEEDS** that grow, including rare novelties that cannot be had elsewhere. Any seed planter is welcome to a copy **FREE.** Send your address to-day on a postal.

W. ATLEE BURPEE & CO., Seed Growers, PHILADELPHIA.

In writing to advertisers please mention this paper.

HONEY COLUMN

CITY MARKETS.

BOSTON.—*Honey.*—Our honey market remains about as it has been, with light demand. Comb honey, 14c; extracted, 5@6c. E. E. BLAKE & CO., Jan. 19. Boston, Mass.

KANSAS CITY.—*Honey.*—The stock of comb honey is large; market well supplied. Fancy white 1-lb. combs, 15; amber, 12@13. Receipts of extracted, light; white, 7; amber, 5½@6; southern, 4½@5. Beeswax, 22. HANBLIN & BEARSS, Kansas City, Mo. Jan. 19.

ST. LOUIS.—*Honey.*—There is some improvement in trade since our last report. We quote clover comb, 16; amber, 12½@14; extracted in cans, 5½@6; in barrels, 4@4½. Prime beeswax, 28. D. G. TUTT GROCER CO., St. Louis, Mo. Jan. 18.

CLEVELAND.—*Honey.*—Honey is slow sale. No. 1 white in combs at 14@15; No. 2 white, 12@13; No. 1 white extracted, in 60-lb. cans, 6@8. Beeswax, 25@27. WILLIAMS BROS., 80 & 82 Broadway, Cleveland, O. Jan. 17.

DETROIT.—*Honey.*—Supply of comb honey increased, and more than equals the demand. Prices remain the same. Best, 14@15; dark, 11@12; extracted, 6@7. Beeswax, 26@27. M. H. HUNT, Bell Branch, Mich. Jan. 18.

KANSAS CITY.—*Honey.*—The demand for comb honey is improving. No change in extracted. We quote 1-lb. comb, white, No. 1, 14@15; No. 2, 12@13; amber, No. 1, 13@14; No. 2, 10@11; extracted, 4½@6½. Beeswax, 22@25. C. C. CLEMENTS & CO., Kansas City, Mo. Jan. 19.

ALBANY.—*Honey.*—There has been quite a demand for both comb and extracted during the past few days, and our stock is considerably reduced. We quote white comb honey, 12@13; buckwheat and mixed, 9@10; extracted, 4½@6½. CHAS. McCULLOCH & CO., Albany, N. Y. Jan. 19.

DENVER.—*Honey.*—Our market seems rather on the decline, owing largely to the depression of the "times." We quote No. 1 white comb, put up in 24-lb. cases and suitable to put into cartons, 10@11; No. 2, in 24-lb. cases, 9c; No. 1 extracted, in 60-lb. cans, 6@6½; No. 2, in cans, 5@5½. The demand for extracted is quiet, with a good supply on the market. Choice yellow beeswax, 2c. R. K. & J. C. FRISBEE, Denver, Col. Jan. 22.

SAN FRANCISCO.—*Honey.*—White extracted honey, 6½@7; light amber extracted, 6c, probably 4½c; 1-lb. frame, 10@12. Beeswax scarce at 27c. SCHACHT, LEMCKE & STEINER, San Francisco, Cal. Jan. 24.

MILWAUKEE.—*Honey.*—The new year opens with a good supply of honey on hand, and rather a dragging trade. The late receipts are not of as good quality or condition as desired, and a want of care on the part of shippers plainly shown in not packing sections in cases in a neat and marketable manner, hence the honey is broken and not very attractive. We continue to quote best 1-lb. sections, 16@17; good, 14@15; common, 12@14; extracted, white, 6½@7½; dark, 5½@6. Beeswax, 23@25. A. V. BISHOP & CO., Milwaukee, Wis. Jan. 18.

SPRINGFIELD.—*Honey.*—White clover honey, 15@16; buckwheat, 12. Our market is not active; it is selling slowly. PERKINS & HATCH, Springfield, Mass. Jan. 17.

MINNEAPOLIS.—*Honey.*—Prices are low, and trade is demoralized. Fancy white comb, 16@17; No. 1 white, 14@15; fancy amber, 13@13½; No. 1 amber, 12@12½; fancy dark, 12; No. 1 dark, 10c; extracted, white, 7; amber, 6; dark, 4½. J. A. SHEA & CO., Minneapolis, Min. Jan. 22.

We yet have extracted alfalfa at \$7.80 per box of 120 lbs. AIKIN BROS., Loveland, Colo.

Closing out balance of my fine extracted basswood honey at 7c f. o. b. Who is not supplied? ELIAS FOX, Hillsboro, Wis.

ALFALFA HONEY. very white, thick, and rich. Two 60-lb. cans at 7c. Same, partly from cleome (tinted), 6c. Samples, 8c. OLIVER FOSTER, Las Animas, Col. eift

WANTED.—5000 lbs. clear yellow beeswax, at 27c cash; also several tons pure extracted honey that does not contain basswood or buckwheat; also several tons pure extracted white-clover honey, at 10c; send sample and quantity before shipping. WM. A. SELSER, 10 Vine St., Philadelphia, Pa.

FOR SALE.—Alfalfa comb honey, snow white, 12c; partly from Cleome, light amber, 11c. D. S. JENKINS, Las Animas, Col.

CHAS. ISRAEL & BROS., 110 Hudson St., N. Y.

WHOLESALE
DEALERS &
COMMISSION
MERCHANTS.
Established
1875.

HONEY

—AND—

BEESWAX.

LIBERAL
ADVANCES
MADE
ON
CONSIGN-
MENTS.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 187d db and Prompt.

I told you so.

Mrs. Atchley:—The one-frame nucleus I got of you last spring gave me 120 well-filled one-pound sections. J. A. SMITH, Heber, Utah, Oct. 9, 1894.

Now, haven't I told you that it will pay to send bees north in the spring?

One-frame nucleus, \$1.00; 10 or more, 90c each. Bees by pound, same price. Untested queens to go with them, 75c each.

Untested queens by mail, \$1.00 each; \$5.00 for 6; \$9.00 per dozen, till June; after, 75c each; \$4.25 for 6, or \$8.00 per dozen. I breed the leather-colored Italians, 5 bands, and Carniolans, in separate yards, at safe distance.

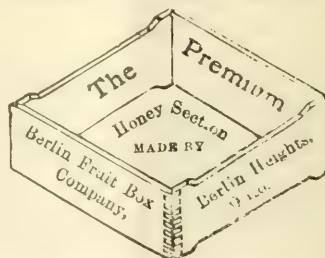
Tested, 3 bands, \$1.50 each; 5 bands or Carniolans, \$2.50 each.

Fine breeders of either race, or imported queens, \$5.00 each. Full colonies with untested queens, \$6.00. Ask for discounts to dealers, and by quantities.

The only steam bee-hive factory in south Texas. Root's goods, Dadant's foundation, and Bingham smokers.

Safe arrival on every thing guaranteed. Send for FREE catalog that tells all about raising queens.

JENNIE ATCHLEY, Beeville, Bee Co., Texas.



WE have a large stock of **SECTIONS** now ready, both No. 1 and No. 2. Write for special prices on winter orders in large or small lots, including all other supplies. Also **Berry Crates and Baskets** made up or in flat.

Address **BERLIN FRUIT BOX CO., BERLIN HEIGHTS, O.**

GREGG RASPBERRY-PLANTS, \$5.00 per M.

Palmetto Asparagus seed, 45c per lb.
E. A. BOAL, Hinchman, Berrien Co., Mich.

Please mention this paper.

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World's Fair Medal

Awarded my *Foundation*. Send for *free samples*. Dealers, write for wholesale prices. Root's new *Polished Sections* and other goods at his prices. *Free Illustrated Price List* of every thing needed in the apary. **M. H. Hunt,** Bell Branch, Mich.

Florida and

ALL Southern Bee-keepers,

Do you know that the freight rates (by water) are one half less from *here*, than from any place you can obtain a full line of supplies.

Rate on bee-hive material, to

Jacksonville, Fla., 1½¢ per 100.

Palatka, " 34¢ " "

Daytona, " 46¢ " "

Cedar Keys, " 55¢ " "

New circular upon application.

I. J. STRINGHAM, 105 Park Place, N. Y.

Peach-trees! By mail, 10 for 60 cts.; by freight or express, \$4 per 100. Crosby, Elberta, Stump, and other best varieties.

Japan Plums. Abundance, Burbank, and Satsuma; by mail, 5 for 60 cts.; by freight or express, \$10 per 100. Cedar Grove Farm.

JOHN CADWALLADER, Proprietor,

North Madison, Indiana.

Talmage, Otcoe Co., Neb., Dec. 8, 1894.

John Cadwallader, Dear Sir:—I received your trees Nov. 22 in good order, well packed, and thrifty-looking trees. Thank you for the Satsuma.

Yours respectfully, **JAS. RITTER.**

Here is a report of one order sent by mail April 7, 1894. It embraced 10 peach trees (5 sorts) and two Abundance plum, the whole cost 90c. Remember I pay the postage and send 10 peach trees for 60c.

Mexico, Mo., Jan. 7, 1895.

John Cadwallader, Dear Sir:—The trees received of you last spring all lived and did well.

I want a few trees next spring. **B. BALDWIN.**

BUNCH OR VINELESS YAM.

W. E. Price, Eufaula, Ala., will supply them as follows: 1b., 25c; 2½ lbs., 50c; 6 lbs., \$1.00, postpaid. Peck, 50c; bushel, \$1.75; 3-bushel barrel, \$4.25. 10% discount for cash. Reference, Capt. S. H. Dent, President National Bank.

500 Barrels Sweet-Potato Seed.

Yellow Jersey, best variety, \$3.00 per barrel.

Red Spanish, Red Bermuda, and Jersey Queen, \$4.00 per barrel; 5% discount on 5-barrel lots.

Our stock is fine. Order now and secure a supply at reasonable prices. **L. H. MAHAN,**

3-7ei Box 143, Terre Haute, Ind.

OTTUMWA BEE-HIVE FACTORY.

Bee-keepers, look to your interests. Every thing in the line of bee-supplies constantly on hand. Price list free. **GREGORY BROS. & SON,** Ottumwa, Ia. South side.

In responding to this advertisement mention GLEANINGS.

My Strawberry Catalog

FREE to all.

C. N. Flansburgh, Leslie, Mich.

H. C. SIMPSON,

BREEDER OF ITALIAN BEES AND QUEENS,

And dealer in Bee-keepers' Supplies.

Send for price list.

CATAWBA, S. C.

Jas. M. Smith, Perkiomenville, Pa., breeder of 16 leading varieties of **Poultry.** Eggs, \$1.00 per 15. Catalog free.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must say you want your advt in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange one-piece-section machine, steel feed-grinder (½ ton per hour), 8 H. P. engine, 25 ft. 8-inch rubber belt, for brood fdn. or Hoffman frames with comb wired.

A. D. WOOD, Lansing, Mich.

WANTED.—Two or three hundred colonies of bees to run on shares for comb or extracted honey the coming season, or to take charge of as apiarist. Reference, W. L. Cogshall, West Groton, N. Y.

RUSSELL T. STINNETT, Bells, Va.

WANTED.—To exchange Cuthbert or Marlborough raspberry-plants for beeswax, honey, or offers.

C. G. MARSH, Belden, N. Y.

WANTED.—Offers on a new 200-egg Noxall incubator at \$15.

R. C. AIKIN, Loveland, Colo.

WANTED.—To exchange supplies and other goods for honey. O. H. Hyatt, Shenandoah, Iowa, 20tf

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.

J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 200 colonies of bees for anything useful on plantation.

ANTHONY OPP, Helena, Ark.

WANTED.—For spring planting, apple, quince, currants, gooseberry, strawberry, in exchange for golden queens, in June.

J. F. MICHAEL, Greenville, O.

WANTED.—People to drop a card and tell me what they have to exchange for Gregg and Cuthbert raspberry and strawberry plants. No. 1 stock.

DAN WHITE, New London, O.

WANTED.—To exchange bee-supplies for either Gem or Cigar-box planer.

E. J. SHAY, Independence, W. Va.

WANTED.—To exchange dark extracted honey for a 20 or 30 inch cut-off buzz-saw; also foundation-mill, for offers.

F. W. STEVENS, Moore's Hill, Dearborn Co., Ind.

WANTED.—5 to 8 H. P. engine, in good repair, price and kind.

H. A. ALLEN, Milton, Vt.

WANTED.—To exchange a Simplex Hatcher and brooder combined, 160-egg, used two settings, price \$12.00, for 150 lbs. of good extracted honey.

J. VAN PETTEN, Linn, Kansas.

FOR OFFERS.—One No. 2 Automatic gauge lathe, and 1 improved gauge lathe (for handle-making). Let me know a good location for a custom sawmill, some one.

W. S. AMMON, Reading, Pa.

Over \$5.00

Is what it costs to take the leading bee-journals, even if secured at clubbing-rates. The BEE-KEEPERS'

REVIEW endeavors to give the CREAM of all these journals, and it costs only \$1.00. If you can't afford to take all of the journals, yet wish to be well informed in apicultural matters, try the REVIEW.

W. Z. HUTCHINSON, Flint, Mich.

Sample Copy Free!

Please Cut Out

This whole Advt. sign, and Mail.

Please send me the American Bee Journal each week for Three Months. At the end of that time I will remit \$1.00 for 1 year's subscription, or 25c. in case I decide to discontinue.

To the Publishers of **American Bee Journal**,
56 Fifth Avenue, CHICAGO, ILL.

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32 Pages, Weekly!

A YEAR'S WORK AT FORDHOOK FARM (BEAUTIFULLY ILLUSTRATED)

IN this new book just published the pen and camera transport its reader to "Fordhook," the Model Seed Farm of America—in so far as such a thing is possible—by affording him a comprehensive view of it as it actually appears. Although the price is 10 cents, we will, upon receipt of **two 2-cent stamps**, mail a copy to any planter who desires to read it before sending this season's order for seeds. Shall we mail you a copy now?

In addition to the many charming views of "Fordhook," it contains photographic illustrations of a unique Floral Wonder to appear in 1896—something absolutely without parallel in the annals of Horticulture. One dollar per seed would not buy a packet now; but we believe flower lovers the world over will be glad to learn, a year in advance, of the coming of the greatest novelty that has yet rewarded the scientific cultivation of flowers. 'Twill produce a profound sensation in '96, and it were wise for you to-day. Address,

W. ATLEE BURPEE & CO., Philadelphia, Pa.

A BRIGHT BOOK ABOUT SEEDS (JUST ISSUED)

Bright alike inside and outside. The outside is red, and the inside certainly will be—by all who need live seeds.

Mailed free to any address sent on a cent postal card. You'd better spend that cent to-day? ADDRESS AS ABOVE.

Early
Queens
By
Return
Mail.

Choice Tested Italians, vigorous and prolific, \$1.00 each.

These queens were reared in the fall of '94 for our early spring trade, and are guaranteed to give satisfaction.

J. W. K. SHAW & CO.,
Loreauville, Iberia Parish, La.

Save Freight! Buy Root's goods at their prices, near home. Catalog ready Feb. 1. Write for prices on what you need, at once.
John Nebel & Son, High Hill, Mo.

Every Farmer

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GLEANINGS IN **BEE CULTURE** A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS. ILLUSTRATED SEMI-MONTHLY Published by THE A. I. ROOT CO. \$1.00 PER YEAR MEDINA, OHIO.

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FEB. 1, 1895.

No. 3.

STRAY STRAWS FROM DR. C. C. MILLER.

I JUST BELIEVE that C. Davenport has given a capital plan for mice, p. 54, to give them such a variety.

HONEY SOURING in the hive is something I think I never heard of till lately. How far north has it been known?

THAT STATEMENT on p. 45, that E. France has 140 colonies in the home yard, makes me all alive to know whether that's the regular thing, and what supports so many.

A BRIGHT AMERICAN girl was asked in England what was done with so much fruit in this country. She replied, "Oh! we eat what we can, and we can what we can't."

IS EUCALYPTUS, that Prof. Cook tells about, p. 52, the same as in Australia that Australians say is so fine, and that bee-keepers in England will not admit is fit for the table?

FROM SWITZERLAND come reports of two cases of fecundation of the queen during the act of swarming. I had supposed it was quite a common thing with after-swarms. How is it?

I'M GLAD TO KNOW that cement-coated nails are better than rusted. Sometimes I rust them purposely; but it's troublesome to do it well, and, besides, I don't like the looks of the rusty nailheads.

"ALWAYS make a new colony a full colony, especially if made late in the season," says E. France, p. 44, and it's worth saying again, both for the sake of getting that dash out, and emphasizing it for beginners.

ABOUT 150 COLONIES of live bees were at the great German convention and exposition, nearly all black or German bees. Somehow black bees have more friends in England and on the continent than in this country.

EDITOR LEAHY tells what a good time he had with J. T. Calvert, of the A. I. Root Co., at a visit on the way from St. Joe. Now, you can

fling all the mud you like at the "mutual-admiration" business, but that sort of talk makes a good bit nicer reading than mud-flinging.

A GOOD POINT in favor of laws against adulteration is given by S. E. Miller, in *Progressive*. It gives the public more confidence in purity of product. Lately, in a region where good cheese-factories abound in Illinois, I found New York cheese on the table, simply because New York laws were more strict as to pure cheese.

AFTER READING what E. France says, the old question comes back whether *covered* sealed covers may not be all right, and *uncovered* sealed covers all wrong. His covers have straw over them. Is there nothing but the sky over yours? [No, sir. There's a good big cushion and cover over them. Our sealed covers have always been so protected in winter.—ED.]

"FRUITS produced by self-pollination are quite different from those produced by cross-fertilization. Few varieties of apples will self-fertilize to any extent. The chief agents for fertilization are insects, and honey-bees are among the best. Every fruit-grower should keep some bees to fertilize his blossoms, or see that his neighbor does."—*Green's Fruit-grower*.

A SYMPOSIUM of six articles on five-banded bees occupies most of the *Progressive* for January, leaving the impression that there are five-banders and five-banders, or, as Hutchinson expresses it, "the dark, leather-colored bees are, as a rule, the better workers, but the brighter-colored bee *may* be just as good workers as their darker sisters . . . and *some* strains are." [Them's my sentiments, and I think they agree fairly with what I have said.—ED.]

"THE HONEY-BEE is not able to pierce the skin of fruits; but they have the power of getting in between the joints, as one might say, consequently they manage to work in between the pips of the raspberry, and also into the grape, near its junction, and in this way crops of grapes and raspberries are wholly ruined by bees." That's what Meehans' *Monthly* says. Now, will that good monthly tell us just how it found that out?

THAT WAX is secreted by bees, and not gathered somewhere outside the hives, was, according to Cowan, discovered as early as 1684 by Martin John, and soon after by Thorley; but no great notice seems to have been taken of it till it was rediscovered by a Lusatian peasant whose name, Cowan says, is, unfortunately, not given. Herr Beck, in Gravenhorst's *Bienenzeitung*, gives H. C. Horebostel as the name of this man to be remembered for his discovery in 1720.

THE DOCTRINE that each nurse-bee prepares food for larvæ of a particular age gets a black eye from Gravenhorst. He thinks it will not do to say that a bee 9 days old is too old to feed a larva one or two days old, because, when brood-rearing commences in spring there are none but old bees present. Also, after a colony has been long queenless in summer the larvæ are well fed on the introduction of a queen. Dzierzon, in Noerdlingen *Bienenzeitung*, pokes fun at the whole idea.

FOUL BROOD raged for two years in the apiary of Herr Fulde, in spite of all efforts at cure; then every two or three days a few drops of the new disinfectant, lysol, was given in the bees' food, and it worked like a charm, all traces of the disease disappearing for good in three weeks. Now, what's lysol? and will it work in the English language as well as in the German? [I should be interested also, in knowing whether the disease stayed away. Perhaps Herr Gravenhorst will answer these questions.—Ed.]

HERR REEFEN, the great German gleaner, sturdily opposes the idea that workers carry eggs or larvæ from one cell to another, and yet he has most faithfully given all the testimony favoring such belief. He now sums up as advocates, Langstroth, Wagner, Root, Abbott, Americans; Editors Bertrand, Wathélet, French; but Germans and English seem to be absent from the list. [I have personally seen a worker carry an egg (not larva), but what it did with it I can not be positive. I was not interested at the time, and so did not take the pains to follow the bee up.—Ed.]

YE EDITOR is a little too sweeping when he says, p. 23, that color will detract from both prolificness and the honey crop. Best qualities don't necessarily go with any shade of color. I like leather color, not because that color makes good bees, but because good bees happen to have that color. [The last sentence taken alone (and to which you doubtless refer) does sound a little strong; but when taken in connection with what precedes, and especially with what I have said aforetime on this same question, I don't think my meaning will be misunderstood. What I meant was that it was *liable*, under the present craze, to detract from both of the qualities—prolificness and honey-gathering, because, in the selection of the one thing, color, the other things are left out of the

consideration; or, rather, the undesirable traits are allowed to creep in.—Ed.]

GENERAL CORRESPONDENCE

CAMPING, FISHING, CUTTING BEE-TREES, ETC.

HOW TO GET BEES OUT OF TREES WITH FEW OR NO STINGS: A QUESTION FOR C. A. HATCH TO ANSWER.

By E. France.

I have been in the habit of going to the Mississippi River and camping out, or living in a tent, from four to eight weeks, for the last five years. I go for sport and health. I think it does me good, and it gives me rest from other labor. My wife has gone with me three years, and she stays about five or six weeks, then takes the train and comes home, and I stay two or three weeks longer. I usually stay until it gets pretty cold, as we get better fish after the weather gets cold enough to use an overcoat and mittens.

I have a partner, a Galena man, who camps with me and stays as long as I do. We each have a boat and a tent, a stove in the tents, good beds, and camp-outfit. We are as comfortable there as at home, with plenty of fresh air. We catch catfish, buffalo, bass, pike, and a few other kinds. We fish with rod and line. At that time of the year we catch mostly pike, called there salmon, but they are *not* salmon.

I was feeling pretty miserable—tired out, no appetite. After I had been there three days I thought I should have to give it up and go home. But I stayed; and after I had been there a week I got stronger, and got a "river appetite," as I call it. After that I was all right, and able to handle my boat without tiring me as it did at first. I went down the 20th of September, and came back the 12th of November; but as the weather turned out, the best fishing was after I came home. As for fish, I got enough. I salted a 15-gallon keg full, and sent home once a week a good market-basket full.

With the rest of the fun I helped to cut two bee-trees. I was down there, and stayed a week with Newel France and his whole family in August. I found those two bee-trees on an island. The island belonged to an old fisherman. He lived in a cabin on the island—the same island that we camped on later. I showed him the trees, and told him I would help him cut them when I came down in the fall to fish. So when I went in September I took along a smoker and brush-broom, and a paper of tobacco. You see I wanted a good strong smoke, as the trees had to be chopped down,

and the bees would get a terrible jar, and would be mad.

After we had been in camp about three weeks the old man came to our camp one day and said the boys had come to cut the bee-trees. The boys were the old man's sons, three of them, and all married. The old man said the boys were chopping down one of the trees. "That won't do," I said. "Go to them as soon as you can, and tell them not to fall the tree until I get there." It was very important that I should be there when the tree fell. He got to the tree in time to stop the chopping. got together what things I wanted—smoker, brush-broom, pail for honey, veil in my pocket, etc. One of our fishing partners went along to see me handle the bees, as he had cut a tree once, and got nearly stung to death.

When we got to the tree we found the boys waiting for us, with the tree still standing. I filled my smoker and lighted it; and as this tree had a good many large limbs it was not likely to fall hard, so I did not put on my veil. "All ready! let her drop!" A few licks with the ax, and down it came. Just as soon as I could get to the top of the tree I was there blowing my smoke into the entrance. Very few bees had got out, and what few there were out went up to where the top of the tree had been—out of our way.

The next thing to do was to get out the honey. "Come on, boys, with the ax." No reply. I went back to the stump. No one was in sight. I halloed; no answer. I took an ax and went back into the top of the tree, and smoked the bees a little more; then I got to work cutting away the brush, getting ready to open up the tree. Directly I heard the old man call from the brush, back beyond the stump. "Mine crashus, man, de pees eat you up."

"No," I said; "get the other ax and come here and help chop. The bees don't sting me, and they won't sting you."

"I'm nod so sure. I pe so 'fraid of dem pees."

"Never mind; come on; if they sting you when you get here I will chop them out."

He came and helped me get out the honey; But those brave boys of his never got nearer than the stump of the tree. My fishing partner came and helped some, after some coaxing. We got two large dishpans full of nice honey—not smashed up much. We swept the bees off the combs a piece at a time, and left them scattered all over the ground. I never saw them after. The old man said the bees after that gathered in a bunch on the ground, and he wanted to save them. I told him to set a hive over the bunch, and the bees would go up into it. He did that, and then took the bees home.

"Now we will cut the other tree." It was easy to cut, as it was rotten at the base. This tree stood alone, and had not many limbs—nothing to break the fall. The bees were away up in the top. I got my smoker ready, and then

got out my veil and put it on. "Vell, vell! now vot you going to do now?" the old man said.

"Well," said I, "this is a horse of another color. You see, this tree has got to fall hard, and may be it will split wide open and throw the bees all over the ground. In that case it will be hard to get the bees to behave, as I can not smoke them if they are scattered; so I will put on this veil, then the bees can not sting me in the face."

"Ya, ya; I see now. Dat is a nice ting. Vy you not use him pefore?"

"Why, the other tree fell easy, and I did not have to use the veil. I very seldom use a veil; but I may have to with this tree."

By this time the tree came down crash on the ground. I ran into the top. The tree was not smashed open. I soon found the entrance, and smoked the bees. There were but few coming out. The hard jar had nearly paralyzed them. I went back to the bushes where the men were hid, and put the veil on the old man, and we went and opened the tree and took out the honey. All together we got a large wash-tub nearly full of nice capped honey. I had brought along a six-quart pail, and I filled it with nice honey to use in camp; but when we had all the honey out of the trees and in the tub, and were ready to leave, the old man said, "Vell, Vrance, what you got to put your part of de honey in?"

"Why," said I, "I have this little tin pail."

"Yes, yes; pud dat von't holt half af de hon-ik."

"Oh! well, this is all I want."

You see, as I had found the trees and helped take the honey, he expected me to have half of the honey. When I told him that little painful was all I wanted, he looked at the tub and hefted one side of it. He said, "*Honey, honey, honey*, all vinter—kee-e-e! *honey* all vinter!" and he was as happy as a king.

"Vell," said he, "it do beat all how you handle dose pees. I tinks you know all 'poud dem pees."

Now that we have the trees cut and honey disposed of I want to mention a few things that I noticed. The first tree cut, I would call the colony in it two years old; at least, they had wintered there one winter. The opening in the tree, or the place occupied by the bees, was five feet up and down, or, rather, down, as the entrance into the tree was at the side of the top. The entrance was fully two feet long—a large crack two inches wide at the top end, and running to a point at the lower end—plenty of ventilation at top, none at the bottom. The cavity was small—room in the largest place for only five combs—about eight inches wide. That part of the tree, or hive, was about two feet long. At the upper end there was room for only two combs, and at the bottom for three—pretty small hive, but it was tall. Every comb was full of honey except one piece at the lower

end two by three inches, that had capped brood in it.

The second tree cut was a larger hive—six feet high, top and bottom running to a point like the other; lower end, four combs; top only one comb for the last six inches; the middle of the hive had eight combs $2\frac{1}{2}$ feet; entrance, a round knot-hole $1\frac{1}{2}$ inches in diameter, just below the largest part of the hive. This colony had brood in one comb, three inches wide and six inches high, and was also in the very lowest part of the hive. Those trees were cut about the middle of October, and in height were equal to a six or seven story L. hive. I will ask Mr. C. A. Hatch how it happens that all the brood there was in those two hives was at the very bottom. He says it is easy to get the queen to go up, but not down. It is just as easy for me to see how the queen will go down as readily as up. I always find the queen, in the spring, laying in the highest empty comb, or just below the honey; and if left to themselves she will keep the same place all summer—that is, just below the honey; when the honey-flow comes on she will be driven down and down; and if the honey continues to come she will be driven to the very bottom. In the same way, the queen will follow the honey up when there is none coming in. The bees use the lowest honey first; so the queen works up and down according to circumstances, but keeps just below the honey.

Platteville, Wis.

BEE-ESCAPES.

THE DAYTON ESCAPE CRITICISED; NO ADVANTAGE IN HAVING MORE THAN ONE WAY OF ESCAPE; AN INTERESTING AND VALUABLE ARTICLE.

By R. & E. C. Porter.

Mr. Editor:—In reference to the Dayton escape, and his articles regarding it and escapes in general, permit us to say that, when the article describing it appeared in GLEANINGS, and you asked for the experience of others with it or similar devices, we refrained from responding because we dislike exceedingly to do any thing that savors of "ax-grinding," and do not now wish to say any thing for publication; but in view of what he says in Jan. 1 GLEANINGS we think a few words with you personally regarding the matter may not be out of place.

Mr. Dayton's theories are, perhaps, plausible; but some of these, as well as the claims he makes for his device, and his statement of the results of his experiments with the Porter escape, are at variance with our experience.

In 1890 we tested many forms of trap-door escapes; but all, sooner or later, proved to be impracticable for general use, on account of difficulties arising from propolis and corrosion, and none were found to show any points of superiority over properly made spring escapes.

The form inclosed proved the most nearly successful of any; but in occasional instances, this too was propolized so as to prevent its working.

For experimentation, a number of boards were filled with this form, some with one escape opening into the brood-chamber in the usual way, some having one opening into the brood-chamber, and in addition thereto having one placed in the rim or cleat of the board, opening outside the hive, and admitting light directly to the super, both ends of the body of the escape being open, and some having an escape only in the rim of the board. All of these were carefully tested, comparatively. The first arrangement was found equal to the other two in all respects, and superior in some. The addition of an escape to the rim of the board, and opening outside the hive, admitting light to the super, was not found to shorten the time occupied by the bees in leaving the super in any instance; but, on the contrary, it proved objectionable on account of attracting robber-bees, and causing disturbance of the apiary. With the same device, and at the same time, Mr. S. A. Shuck, of Liverpool, Ill., made for us substantially the same experiments that we made, and with the same results. You will notice that the swinging-gate, or door, in the escape sent you is so delicate that bees in passing under it will pay practically no attention to it. In fact, it is far more delicate than is necessary.

The following clipping from the directions sent out with the Porter escape is a concise statement of the reason that it is made in its present form:

One escape to the board is sufficient. Extensive experiments have shown that a larger number, or one having greater exit capacity, will do the work no more rapidly. Also that the circulation of air through the escape supplies the super at all times with sufficient ventilation.

Before the permanent form of the Porter escape was finally decided on, neither time, pains, nor expense was spared to determine the best possible form. For an entire season it was carefully tested by several expert bee-keepers in a large number of different forms, embracing those in which the bees passed out under the springs, those in which they passed out over them, those in which they passed out between them, those in which they passed out between them and the sides of the escape, those having exits varying in number from one to a dozen, and those in which perforated tin was used for the tops, also for both tops and bodies. After carefully considering the excellencies and defects of all, the form that is now known to the public was decided on as in every way the best; and the universal favor with which it has been received after large and extensive use in all parts of the world leads us to believe that we have made no mistake in our choice; but if we ever find that we have, we shall be only too willing to change it.

On August 4, 1893, after reading Mr. Dayton's criticisms of escapes in the *Review*, we took the pains to send him by mail four Porter escapes

of the usual form—two similar to these, but having exits at both ends, and one with fifteen exits in which the bees passed out under the springs, and we wrote him, asking him, if he cared to do so, to place the four in a board, and test them comparatively, with one of the same kind in a board, and also with the other forms sent, and favor us with the result. But as yet he has taken no notice of either the escape or the letter. We can not doubt that both reached him, as both have request for return if not delivered.

At the same time, to Mr. R. C. Akin, of Colorado, who had also been criticising escapes, we sent a package of escapes identical to that sent to Mr. Dayton. Mr. A. made the test wished for, and reported that he could see no advantage in the large forms, or in using more than one to a board.

Lewistown, Ill., Jan. 5.

[If Mr. Dayton received the package of escapes referred to, perhaps he would have no objection to reporting the result of his experiments with them in these columns. I should be glad to have him do so whenever he is prepared to make such report.

It occurs to me that it would not be a bad idea to send a similar package of escapes to R. L. Taylor, to be tested at the Michigan Experiment Station. We will pay the expense of the escapes, and also of those sent by Mr. Dayton to the same place.—Ed.]

HONEY-HOUSES FOR OUT-APIARIES.

HOW PRACTICED BY W. L. COGGSHALL.
PLAIN, PRACTICAL INSTRUCTIONS; MANAGEMENT OF OUT-YARDS IN GENERAL.

By Harry S. Howe.

It seems to me as though the slight expense of a permanent building is more than balanced by the advantages of having a place where the extractor and other things can be kept under cover and ready for instant use. At the present prices of extracted honey we have got to reduce the work to the fewest possible motions and to the least possible expense if we are to make it profitable.

By having permanent buildings at the out-yards, any one can save a great deal of the expense of transportation. If we are to do as Mr. Coggshall does, and visit two or three yards in a day, and take three or four thousand pounds of honey, we must have the work reduced to a perfect system.

After one or two trips with a team and heavy wagon in the spring, to take the kegs, etc., to the yards, the trips can be made in a buggy, if two or three are to go, or on the wheel if but one, until time to draw away the honey in the fall.

As Mr. C. and I have worked together, one puts out the horse while the other lights the smoker and prepares for work in the yard. By the time the horse is cared for the empty kegs for the day's work have been tested by blowing into them, and we are ready to commence to

take off the honey. When the yard has been gone over, it is an equally short job to pick up and start. One gets the horse while the other goes through the yard and sees that no fire has been left, and attends to any other little matters. Then away we go, three or four miles, to the next one.

Nearly every thing that is likely to be used at the yard is kept there, so there is no forgetting to take some important thing.

Mr. C. wears his veil in his hat all the season, consequently it is always ready. When there is but little to do, one man can get to the yard on a wheel or in a buggy, and go over it very rapidly, if every thing he is to use is there handy.

Mr. C.'s nine houses and my two are all very nearly alike. They are 12x16, and 8 feet high at the eaves, made of rough lumber, but having good floors. Sixteen-foot boards cut in two make the sides; twelve-foot boards, the floor, which must have a good foundation in order to support the weight of the honey, without sagging. The door should be wide enough for the cart or wheelbarrow, or whatever you use to carry in the honey, to go through easily. The windows are the size of one large sash, and slide sidewise to open. They are covered with wire cloth on the outside, and have bee-escapes at the top.

The house should be at the lower side of the yard, and so situated that you can get in without having to go up a high step with a load of honey. Following is a plan of the house:



On entering the door, the first is a stand, just the right height for the filled carryall. Beyond and in front of the window is one of Mr. C.'s own make of four-frame non-reversible extractors, which holds 300 lbs. under the reel. From this the honey passes through a large honey-gate to a ten-quart pail; then into a store-can holding from 300 to 500 lbs., and which is just at the right height to run the honey into the two 110-lb. pine kegs, which are stored in the back part of the room as fast as filled.

We do not usually begin to draw off the honey from the extractor until it is pretty well up, so

there is small need of a strainer; but at the last there is a large one made of cheese-cloth stitched to a hoop that will just go over the store-can, through which it is poured, and which is used to keep any stray bees from getting into the honey. The holes are bored in the heads of the kegs with a one-inch bit as they are taken from the car. The plugs are turned, and are a perfect fit every time. The honey that might get past a poor hand-made plug will soon pay for them at one cent each.

The capping-dish is placed within easy reach of the man who runs the extractor, and also of the one who carries in, so that, whichever one has the most time, can use it.

There is a box for the smoker fuel in the corner, and a shelf for dishes of different-sized nails; wires for broken combs; plugs, etc.; also plenty of nails to hang things up on, and a good brass lock for the door. The parts of the lock must be all brass or it will rust out through the winter. One key will fit the lock to all the honey-houses. There is always a pail of water near the door to wash the fingers if they get sticky; and to keep the whisk-broom, used to brush off the bees, soft and pliable.

We have found it cheaper to keep all the things wanted, at each yard, than to pay for the inevitable breakages and loss of moving extractors, etc., from place to place during the season. It does not take any more room to store the things at each yard than it does at home. Such a house can be put up, in this vicinity, for \$30.00.

The places are rented for a term of years. In some cases the houses are to become the property of the land-owner when the bees go away; in others they are built in sections and put on blocks, so as to be moved. When they are to be left they usually agree to pay a small price for them, or the rent is small enough so that we can afford to leave them.

West Groton, N. Y.

[Such articles as these are just what we want. It is the account of real practical work of what has been done—not what might be done in beautiful theory, that makes interesting and valuable subject-matter. Come again, friend Howe.—ED.]

HONEY AS A DIET.

WILL IT EVER BECOME AN ARTICLE OF COMMON FOOD? ARE BEE KEEPERS SETTING AN EXAMPLE IN THE USE OF HONEY IN THEIR OWN FAMILIES?

It is no doubt very laudable in honey-producers to try to extend the use of honey by getting people accustomed to using it more frequently upon their tables; but we must not be blind to the fact that we have a great deal of prejudice or distaste for honey, real or fancy, to overcome before it becomes a staple article of

diet such as butter, sugar, preserved fruits, and even syrups. Many persons do not like honey; others care but little for it; and I have met several who could not eat it without its making them sick. Housekeepers will naturally cater to the taste of their families and guest, and will not provide an article of food for their table that is not appreciated by the majority, especially if that article is more costly than others that may be substituted for it.

I have traveled some, and visited much in private families. For the last six weeks I have been somewhat of a rambler, and have been the guest of many families in Central Kentucky, known as the rich blue-grass country. I can not now remember of ever seeing honey on the table of a hotel; and in my late rambles I have not met with it on the tables of private families. Speaking to a most excellent matron whose table is very bountifully supplied both with the substantial of life and most of the luxuries that can be bought, she said her family cared very little for honey; and as for herself she would not give one jar of peach marmalade for all the honey in the world, and hence she did not provide it for her table.

Molasses or syrups I have found at the hotels generally, and quite often in private families. The low price of these, and of sugar, and the more general production and use of fruit, all combine to lessen the use of honey.

I do not wish to discourage bee-keepers from trying to make the use of honey more common; in fact, that should be our object; but it is best to look the facts squarely in the face, and I must admit that they seem to be against the use of honey as a common article of food.

What can we do to increase the use of honey? This is a question that I am not prepared to answer satisfactorily, even to myself. We might set an example by using more of it upon our own table. Last winter we had honey regularly three times a day upon our table, and continued to have it more or less all the year round. We would vary it—extracted honey candied; extracted dissolved, and comb honey. But I must be candid, and say it was seldom tasted except by myself and one other member of my family. I am a lover of honey, and do not often let an opportunity pass without eating it. I think that I individually eat not less than 50 lbs. a year. There are so few ways that honey can be used, other than to eat it upon your bread and pancakes, that its use must continue to be limited. In cooking, sugar is better and cheaper. I have tried it upon my porridge, upon my fruit, and in my coffee. My wife, to please me, made cakes sweetened with it; but as great a lover of honey as I am, I must confess that I prefer sugar for these purposes.

What are other bee-keepers doing to increase the use in their own families? How often is honey placed upon the table of our friends at the Home of the Honey-bee, where honey is

plentiful and cheap? and how about its use in other bee-keepers' families?

But, of course, something else must be done. The price of honey is, undeniably, high when compared with other sweets and fruits that come in competition with it. Will the price have to come down? and can we afford to produce it profitably at a lower price? or shall we maintain the price and limit the production to the amount consumed by those who use it only as a luxury? These are questions which I must leave to be answered by those who are extensively in the business.

NOTES AND COMMENTS ON THE A B C.

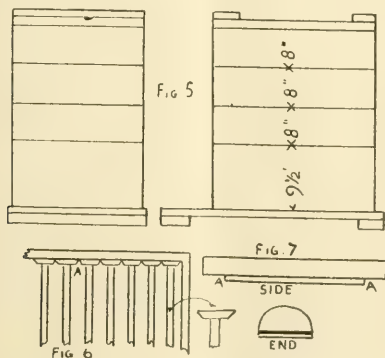
IDEAS OF AN AUSTRALIAN.

By E. James.

I have been much interested in reading your A B C book. I am a practical bee-keeper, and have been working 200 hives in Queensland; but a flood unfortunately swept away years of hard toil in a few hours; but "nil desperandum" is my motto. I love the grand colony of Queensland yet.

I will give you some of my practical experience in bee-keeping in this glorious country of Australia, as no continent in the world possesses such a climate, especially for bees.

1. I was reading in the A B C about smokers. There seems to be a lot of inventive skill thrown away upon them. I prefer the Bingham smoker, with the blast through the fuel; but it is the fuel used that is the question. One day I happened to pick up a piece of bark off a box (a species of eucalyptus-tree), and placed it in the smoker, when I found it gave off an immense volume of smoke; and since then I have used no other fuel.



I have tried a great many kinds of hives, but I have not been satisfied with any of the new-fangled notions. I have come to the conclusion, after considerable practice, that a modified Langstroth-Heddon combination seems to give me more satisfaction than any I have yet used.

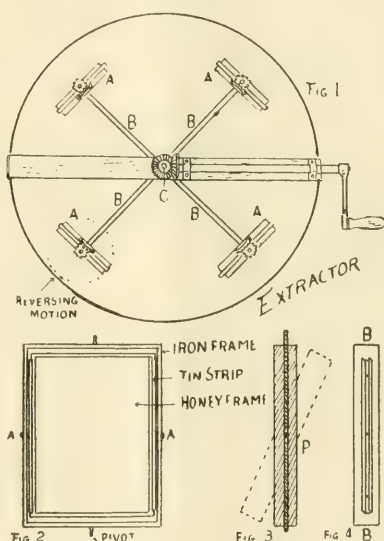
The brood-section is the same size all around

as the Langstroth, but the supers are 8 in. deep. The frames are a modification of the broad-end Quinby, with this exception: the ends of the frames are beveled, or chamfered, as shown at A in Fig. 6. Should the bees build comb up to the end, the frame and case come out quite easily.

Another idea I have is in the line of self-swarming. Place an empty hive in front of the one expected to swarm. I have a thin piece of board with a piece of zinc or tin nailed flat on each end, like a flap. The whole is covered with regulation perforated zinc, as shown in Fig. 7, forming a gangway. Each end at A A is zinc, so it lies close to the entrance of the hive. I have never lost a swarm.

BUZZ-SAWS.

I have recently constructed a saw-bench to work with the foot, and it works to my entire



satisfaction—rips any thing required in an apary. It is much like the hand buzz-saw shown in the A B C, except that there are no cog-wheels; the saw-arbor turns on centers at each end. There is a small hard-wood pulley on the saw-arbor, three inches in diameter, which is driven by a fly-wheel and strap two inches. The fly-wheel is 27 inches in diameter. On the saw-arbor is a fly-wheel from an old sewing-machine, which gives the necessary momentum. The top of the bench is of cedar, one inch thick, hinged at one end. The other end can be raised or lowered as desired, for grooving, rabbeting, etc. Carpenters have had the loan of the bench, and were delighted with it. I have tried benches made on the principle of the Seneca Falls Mfg. Co.'s benches, but it takes too long to speed up, and I had to discard them—too much friction.

A REVERSING EXTRACTOR.

I have also an extractor—quite a new and novel idea. Each cage turns upon a center, as

shown in Figs. 1 and 2. Inside the iron or steel frame are centers, as at A A. By placing the hand on the top of the cage it is inclined outwardly instantly, and the frame can be taken out or inserted quite easily.

The honey comes out splendidly in my extractor, whichever way I turn.

I is a steel frame; C, cage; P, pivot. In this extractor there is no knack or habit to acquire. In placing the frame in the extractor, put the hand on the top, and draw the top of the cage outward; place the frame in, and the cage falls back into its place by its own gravity. When each cage has been operated upon thus, the extractor is ready. When the one side of the comb has been thoroughly extracted, all one has to do is to reverse the extractor, and the four cages are reversed at one operation. There is little or no jerking, nor any undue strain, as in the Stanley. Four steel arms are required to hold the cages, keyed on the center-shaft. Nothing is required to steady the cages at the lower end. I am not a first-class draftsman, but I hope I have made myself clear.

The cut above shows top view of extractor. A A A A are cages for holding frames. B B B B are arms, the center being loose on the upright shaft C; but the arms turn around with the cages. On turning the machine the cages are brought into position as per diagram; reverse the extractor, and the cages are completely reversed; although each cage hangs on a pivot at each side, the cages are self-reversing; there is no jerking, as in the Stanley, nor any thing to get out of order. I have a bevel gear to drive it, slightly stronger than your extractor. The frames are so weighty when filled with honey that the teeth of the gear strip or break—at least, that is my experience.

have known frames to weigh 12 to 13 lbs. with honey.

Australia is a prolific country for bees and bee-food. The various species of eucalypti are wonderful, especially box, gray, and black. More honey is procured on what is known here as the "open box-plains." Here are some figures:

MESSNER'S BEE-FARM.

Williamstown, South Australia, June 18th, 1892; 250 hives produced 47 tons of honey. One colony yielded 45 lbs. of honey per week, or 700 lbs. per season. Not far from where I am, H. Peterson, Wattle Flat, N. S. W., had one hive that yielded 1250 lbs.; 190 hives produced 22 tons, sold for 28 pounds (\$135) per ton, principally from gray box (eucalyptus).

Peak Hill, Australia, Oct. 17.

[Some of your inventions, although ingenious, are quite old in practice. I refer particularly to Fig. 6, the position of the frames, and to the reversing-gear of your extractor. The former idea you will find in looking up Mr. Cowan's book, the "Bee-keeper's Guide," as devised by the author, Mr. Cowan, away back in 1875. But I do not wish to carry the idea that, because these ideas are old, they are therefore

lacking in merit; for, indeed, the Cowan extractor that we are now using, and which has been recently indorsed by the whole bee-keeping world on this side of the Atlantic, was devised some three years earlier yet.—Ed.]

RAMBLE 125.

By Rambler.

IN THE SANTA CRUZ MOUNTAINS.

From the city of Santa Cruz we could see the frowning peaks of the Santa Cruz Mountains. We knew from past experience that they were a toilsome barrier between us and the country we wished to visit beyond. But why should we question the dark canyons and the heights to climb? Had we not surmounted the San Fernando Mountains? yes, and the Santa Yñez? yes, and the Santa Lucia and the Cuesta Pass? yes, and they were all a memory of the past, and we set our faces confidently and resolutely to the surmounting of this barrier also.

As we entered the mountainous region our road led us through a series of romantic drives. We followed the San Lorenzo River, and, after passing an extensive tannery, with its variety of bad odors, we came again into the redwood belt. The smaller trees and undergrowth arched our winding roadway, and the vistas we often caught of waterfalls, forest, and mountains, rustic bridge, and wayside cabins, made the day of travel full of pleasure.

As we slowly toiled up the grade we passed a building fenced with great care. So high was the fence that we could scarcely discern the buildings beyond. A mile or more beyond, again another series of buildings, fenced, gates locked, a forbidding sign, "No admittance." We surmise, "Why all this fencing? too much for poultry-ranches; too elaborate for bee-ranches, for bee-ranches are not fenced in California." Then again we came to fenced buildings; but this time we evidently come to the center of operations, and blazoned to the world in large letters we find the sign, "Powder-works!" So here in a series of buildings, scattered for several miles along the river, explosives of various kinds are manufactured. The buildings are fenced against outside intruders, and located far apart, so that, if an explosion occurs in one building, the next, a mile or more away, will be free from the blowing-up contagion. The powder-works and the tannery below called for much teaming on this mountain road, and loads of wood and bark were constantly met. Five horses to the wagon was the rule—three abreast next the wagon, and two ahead; long-drawn-out teams could not be managed on these sharp curves, so the horses were driven in a bunch, so to speak.

Near Felton our redwoods became so large as to be noted, and visitors are attracted from the highway to visit Gen. Grant and Sherman, and a few lesser lights. As we expected to see

much larger trees we did not bend our course to visit them, but kept on our way. The day was well spent; our ponies were showing signs of fatigue; and while we were considering the advisability of camping, we saw from our forest-canopied road an enticing sign which read, "Lemonaide, 5 cts. a glass." And surely our eyes beheld there among the rocks and trees, and near to a purling stream, an apology for a tent, and a sturdy German stood by the roadside.

The tenor of our conversation, when we halted in front of the sign, was for a good camping-place.

"Dis is der best blace on der road. Durn right in dere," said he, pointing to an obscure opening in the bushes. "Trive town a leedle vays till you comes to ter prook; camp dhere; von goot blace."

Then Bro. Wilder put in his next invariable inquiry: "Is there good hunting in these mountains?"

"Hunting? Mine cracious! dere's lots off it—teers all ofer dese mountains; dere's von oldt pig fellow gomes town into der roat sometimes, shust at night, sometimes shust in der morning, mit horns so vide;" and he stretched his arms to their full extent. "I ton't see how he gets troo dese woods. No, mine cracious! I ton't. Den dere's mountain-lions. I hears two, sometimes dree, roaring like furies on der mountains. Oh, yes! dis vas a creat game goondry; and dere's vish in der river—creat pig vish, may pe veigh von, do, dree, and may pe *seer* point." Just imagine the effect this highly colored news had upon my partner. He was all wrought up for game; and, donning his hunting-equipments, he plunged into the forest. After setting our camp in order I pulled out our fishing-tackle and proceeded in a more quiet way to try the mountain stream. A few trout arose to the bait; but those "von, do, dree, *seer*" pounders were shy of the hook, and I had to content myself with much smaller fry.

Wilder's deer-hunt resulted only in signs. Signs were plentiful where "dose horns, so vide" had knocked the bark off the trees. The only signs of mountain-lions was the hole they had left in the air, with their roar.

A friendly call upon our German in the evening revealed the fact that he was an ex-saloon-keeper. The authorities in a little town near by had high-licensed and otherwise taxed him so high that he had moved out of town, and he felt as though he was a much-abused man. Many teams passed this obscure retreat of his,

and no doubt he sold much "lemonade at 5 cts. per glass."

Our trout breakfast disposed of, we proceeded to climb the long and winding grade to the very summit of the mountain. For nearly fifteen miles we climbed steadily upward. Many times our road led around gorges so deep that we could look into the tops of trees whose base was planted 150 or 200 feet below us. The mountain is quite densely wooded until we near the top. It was here, while rounding a spur in the open, that Wilder grasped his rifle again, and, pointing across to the hill beyond, exclaimed in a sort of stage whisper, "A deer! a deer! Just let me have a chance at him."

We both hustled out of the wagon. It was a long shot; and while the sights were being set the field-glass was suggested as the proper in-



"DHERE VAS TEER MIT HORNS SO VIDE!"

strument to bear upon the animal; and what do you think it revealed? I had to laugh rather immoderately when the glass showed a *bona-fide* donkey. It seemed, through the glass, that he had a sort of grimace on his benign countenance. At any rate, it was a sign of deer that Bro. Wilder did not like, and he was worked up to such a pitch that he said not another word for many miles. As indicated by the donkey, we found the very summit of the mountain inhabited. A large number of Swiss people, true to their mountain habits, have here made their

homes, and cultivate land that, to an ordinary mortal, would seem to be hung up too much edgewise. We saw fields of oats and other grains that were certainly upon land lying at an angle of 45°. The only way that crops could be harvested from these steep hillsides was with a half-cart half-sleigh arrangement, and small loads the rule. The land seemed very productive, and, besides grain, grapes and other fruits were largely planted. The scenery from

ously killed when the owner wanted a taste of honey.

In this portion of the Santa Clara Valley the soil was admirably adapted to the raising of onion-seed, and hundreds of acres were coming to ripened heads. Chinese labor was seen gathering the heads and beating out the seed with the old-time flail. We neglected to hunt up the man with the hundred colonies of bees; but it occurred to us that, near these onion-fields, almond and fruit orchards would be a profitable place to plant an apiary.

For over 250 miles we have traveled now through the coast counties; and not since we left Ventura have we found many bee-keepers. Isolated apiaries we have found in the lower counties; and that there are good localities for profitable bee-keeping in all of the counties, there is no doubt; for wherever we rambled on the barren plain, in the dark canyon, or on the mountain-tops, wherever an opening flower spread its petals to the sun, there we found the busy bee, showing that the little wonder-worker has indeed taken possession of this Western World, and through this fact alone the honey-bee has the profound admiration of the Rambler.



A DEER, AND WHAT THE GLASS REVEALED.

these heights, as we looked out upon the mountains until they shaded off into the dim distance, was grand and inspiring to the beholder.

Our drive down the other side of the mountain was rapid. Our ponies kicked up a terrible dust, and it was in a dusty condition that we entered the beautiful town of Los Gatos. We were now in the famous and fertile Santa Clara Valley. We found a series of thriving towns, of which San Jose is the crowning center.

Apricot-orchards were without end; in fact, the apricot is to San Jose what the orange is to Riverside and the grape to Fresno.

We camp again at Warm Springs, and this time we were happily located near an old schoolhouse. The good people of the neighborhood, to the number of ten, including the Rambler, assembled that evening in a meeting of prayer and singing. Several young men were in attendance, showing that the leaven of the Christian religion was working in the right direction. One of these young men gave us the information that there were but few bees kept in that vicinity. The largest apiary that he knew of for many miles was further down the valley, and contained 100 colonies. His father, he said, kept a few colonies in his almond-orchard. The almond is profuse in blossoms, and this gentleman found that he had more nuts upon his trees if the bees were there to aid in pollination. The honey from the almond he pronounced fine. Their bees were kept in a non-scientific way, and the bees were barbar-

CALIFORNIA NUGGETS.

HOW TO CONSTRUCT A PERCOLATOR; HOW TO KILL A LOT OF KINGBIRDS AT ONE SHOT.

By C. W. Dayton.

In California the antipathy of the fruit-man against bees is equaled by that of him who is trying to dispose of a tract of \$10-per-acre land at \$100 per lot.

The best sign-board and the best advertisement for honey is thirty or forty colonies sitting in the front yard. People dislike to buy honey of those who do not keep bees. It is like milk in a large city—the dairy product is preferred.

A feeder beneath the brood-apartment is preferable in "feeding back" honey to complete sections, as the bees "clean their feet" while traversing the brood-combs. If feeding for winter stores, place the feeder above, as the feed will be taken down faster, it seems to me.

If your apiary is strewn with leaves, as you walk along after dusk toads will be heard rustling the leaves. One way is to gather them up by hand; but a better plan is to sink a few boxes in the earth, level with their upper edges, for the toads to fall into, and deep enough so that they are unable to jump out.

Since it is admitted that kingbirds destroy bees, the next thing is to find a plan to destroy the kingbirds without the expense of a charge of shot and powder, and the time it takes for each bird. Stretch a fence-wire between two trees in line with an upstairs window of the house or barn. In the absence of trees, use high posts. In the absence of such window, let

one post be enough shorter than the other to sight along the wire while standing on the ground. Wait until several birds collect upon the wire, and then clear them off at one shot.

Propolis is suggested as an exterminator of the bee-moth. In using covers to the brood-nests, which are composed of three boards cleated together when new, water ran through into the hives. It also soaked in around the edges, and dropped off near the center of the hives. Since two seasons' use and propolization, they remain dry on the under side through the heaviest and longest rains. If the upper side becomes water-soaked, the under side continues glassy and impervious. It might be added that the covers were of redwood, which is the only kind of wood which does not shrink sideways. The result might be different with pine.

Mr. W. A. Wheeler recommends salicylic acid and powdered borax in water as a cure for bee-paralysis. I wonder if the acid alone would not do as well. If not, then would not the borax alone cure it? If nothing short of the mixture will suffice, it would be interesting to know how the discoverer was able to hit upon the exact specific instead of hitting a million others which might be guessed at. I am thankful for the cure, even if the explanation is not obtainable. I have not lost faith in my own cure (superseding of queens), but I have three cases so early in the season that queens can not be reared. But the acid cure can be applied now. The season of 1893 was a good one for honey, and also a good one for paralysis. Last season was poor for honey, and there were no new cases of paralysis. Now, my wonder is, whether the appearance of paralysis so promptly may not be an indication of an abundant honey-flow in 1895.

To construct a percolator, first get a sixteen-foot board, 14 inches wide, and cut it into four pieces of equal length. Bevel each piece, and nail together so as to form a box 12 inches square at the top and 8 at the bottom, sloping like a mill-hopper. For a bottom to the hopper, get out a small board eight inches square and tack around its outer edge a strip of thick felt to prevent syrup getting through next the outside. This bottom may be dropped inside and allowed to seek its own position. In the center, cut an aperture five inches in diameter, and tack over the same a piece of extractor-screen wire which exceeds the size of the aperture, but should not extend to the margin of the board. Spread over the screen a thin layer of cotton batting, and over the batting another piece of screen to keep the batting in position. Of the waste lumber remaining from the side pieces make four legs by sawing to the right level and nailing to the center of each side. It should be high enough from the floor to set a five-gallon honey-can under. The capacity of the percolator will vary according to the thick-

ness of the cotton batting, the quantity of sugar, and the depth of water. If this percolator is kept full, the yield will be about 20 gallons of thick syrup in 24 hours.

Florence, Cal.

[Your percolator, I feel quite sure, would work, judging from what experience I have had with percolators.—Ed.]

WILLIE ATCHLEY'S EXPERIMENT.

DRONES FROM LAYING WORKERS OR UNFECUNDATED QUEENS; ELEMENTS OF UNCERTAINTY.

By Dr. C. C. Miller.

It is interesting to learn of the experiment reported by Willie Atchley on page 19. For the honey-raiser the matter may be of no particular interest, for he is not likely to have queens mated at any time when drones of undoubted virility and vigor do not abound; but if it be an error to suppose that drones are equally good, we may as well know it; otherwise there might be trouble come from keeping bad drones to use out of season, for it is easier to keep drones in a colony with a drone-laying queen or with laying workers.

That one experiment, however, should not be considered conclusive. Elements of uncertainty may be present unsuspected. Moreover, there is a little cloudiness, apparently, in the conclusions reached, or that seem to be reached; for although the experiment did not involve drones from unfecundated queens, yet Willie says, "I am now fully convinced that I do not want any of my queens mated with any but drones from best fertilized queens." Suppose that it be fully established that drones from laying workers are utterly worthless, does it necessarily follow that drones from an unfecundated queen are any thing but the best?

We should be the more slow at reaching conclusions, because, if I mistake not, the book authorities, where they are not entirely silent on the subject, agree in giving drones credit for value from whatever source they may come. Berlepsch, a man who stands high as an authority, says: "The eggs laid by fertile workers produce perfect drones. I firmly believe this, because the drones thus produced precisely resemble, in every respect, those bred in colonies having fully fertile queens." See *American Bee Journal*, 1861, page 146. Dzierzon, page 24, *Rational Bee-keeping*, says, "As in every respect they are like drones originating from a queen, there is no reason why they should not also possess all the capabilities of the latter."

Cheshire says, "The powers of the drone just described are, almost with certainty, not alone true for those brought up in the normal cells of their sex, the issue of a fertilized mother, but for all indifferently. Hereafter we shall more fully explain that the egg yielding the drone is

unfertilized, so that those born of mothers that have never mated (drone-breeders) are as perfectly developed and as fully virile as others. Dwarf drones also, raised accidentally in worker-cells, or those from the eggs of so-called fertile workers, or workers which, although incapable of impregnation, have yet commenced ovipositing, seem not one whit behind the rest."

It will be noticed, however, that, however high these authorities, their views are not based upon actual experiment, so that, although we should be careful about reaching any opposite conclusion, it is certainly reasonable for us to say that the case is not entirely closed. I would give more for the results of a sufficient number of experiments in the hands of careful observers than for the theoretical views of all the scientists.

Willie says, "I am perfectly satisfied that the queen has the power to deposit eggs without having them come in contact with the semen, or fluid deposited by the drone, and *all* such produce drones. I should be glad indeed to have some of the old heads take this thing in hand, say Doolittle or Prof. Cook, and see if I am not right." Of course, you're right, Willie; but, bless your heart, there's no need for any one to take it in hand. That question was fully settled before you were born. Look at the first volume of the *American Bee Journal*, 1861, and you will see the matter fully discussed and settled in the series of papers on the Dzierzon theory.

At present there is a large amount of theory and a small amount of practice to settle the value of abnormal drones. That being the case, it can hardly be presumptuous to theorize a little more right here.

A worker is not a fully developed female; and although there may be more development in a laying worker than in an ordinary worker, still there is not a full development of the organs of reproduction, and on that account one would hardly expect as good progeny as from a female fully developed in all the parts that in any way have to do with providing and furnishing a vigorous offspring. The worker was never intended for a mother in the first place, and one would hardly expect her to be an unqualified success in that direction. The experiment of Willie Atchley, while in itself not conclusive, is valuable in that it goes just so far toward establishing as a fact, that the offspring of laying workers do not equal those of fully developed queens.

With regard to drones from unfecundated queens, Willie has a rather cavalier fashion of settling the question by manufacturing a definition to fit the case. An undeveloped drone, says he, is a drone from any but a fertilized queen. As we want a fully developed animal for a sire, that at once settles the case, and there is no need of any further experiment. But is it fully established that a drone from an

unimpregnated mother is not as fully developed as one from an impregnated mother? The argument seems to be that the drone is undeveloped because the mother is undeveloped, "as we all know that a queen is not thoroughly developed till she is mated and begins to lay." Do we all know that? Is the fecundation of a female a part of its development? Take two flocks of hens, the one flock fully developed in every respect, and having a cock in the coop; the other precisely the same, except that the cock has been carefully excluded, would you say there was any lack of development in the latter case? Is there no case of full development among the thousands of mares that are never used for breeding-purposes?

Here's a choice tested queen fully developed. How much did her fecundation contribute to her development? Suppose her wings had been clipped during her virginity. Would her development have stopped? Would she not have grown to the same size as now? Would she not have been the same in every respect as now, with the single exception of an empty spermatheca? And in the case of the tested queen, does that spermatheca have any thing whatever to do with the eggs laid in drone-cells?

I don't know the answer to all these questions, and I should want somewhat positive answers before settling down to the belief that a queen can not be mother to a fully developed drone just as well without as with fecundation.

A point still to be noticed is, that a drone-laying queen, even if it should be fully proven that she can raise the best of drones, in actual practice does not raise, or, rather, from her eggs there are not raised, drones of normal size, simply because they are mostly raised in worker-cells; and I think no one would be so well satisfied with drones below the normal size.

On the whole I commend the decision reached, which is seconded by the A B C, to raise drones from only the best fecundated queens.

Marengo, Ill.

LARGE AND SMALL HIVES.

A GOLDEN MEAN: HOFFMAN FRAMES, ETC.

By H. L. Jeffrey.

Mr. Editor:—On page 952, 1894, I note your editorial, "Large and Small Hives, Again." There, as in other places, you refer to the ten, twelve, and sixteen frame hives. Now, just let me tell you that you are not fresh or new in that line of the number of frames; but before going into the experience points I will refer you back to GLEANINGS of twelve or thirteen years ago—1881 or 1882, perhaps 1883—as a proof of what I am going to say, and I will quote from memory, and let you look up the proof of the date; and yet in practice I can go back fifteen or sixteen years. Twelve or thirteen years ago I wrote to A. I. Root from Washington, Ct., that

I was using what I called the Simplicity chaff hive—a hive 18½ inches square inside, with three or four inches of packing at each end of the frames. The hive stood on a chaff-packed bottom-board, and at the *sides* I used a cushion or chaff-packed frame, cloth on one side and thin boards on the other side, turning the cloth toward the bees in winter, contracting the brood-nest to four, five, or six combs, as it was necessary; and in the spring, as early as convenient, I cleaned out the hive and turned the *board* side of these side cushions toward the bees. When I nailed on these board sides, in the first place I laid two or more thicknesses of cloth on the ends and bottom of this side frame, and let the cloth project from ¾ to ½ inch beyond the frame. The cloth is used as a heat retainer or confiner, to prevent the heat from escaping around the end of the frame.

Well, those thirteen-frame hives very often had eleven frames of solid brood, except the top corners of the frames that were filled for three or four inches with pollen and honey; and, what is more, they not often swarmed. I used two styles of surplus-cases on them. One was the wide frame for 8 sections; the other, a case for 4 sections in a row, to place the sections cross-wise of the frames, and use separators, ten sections from front to rear, making 40 sections to the one-tier case, and using two cases high. The sides of these hives were 28 inches long, because they were made of ¾ lumber.

Now for the reasons of the chaff *ends* to the hives: I had always noticed that, in winter, in the single-walled hives, hoar frost or needles of ice formed between the ends of the frames; and by this packing I got rid of that frost in the hives. Then in the case of the 18½ inches in the width of the hive, I had a place to use a side frame of 8 sections at each side, and a half-inch division-board with eight or nine brood-frames before the bees were so numerous as to necessitate putting on a top case.

Besides these large hives I used others, varying from seven frames up to thirteen. At that time, and for thirteen or more years, I was taking care of bees for other people, either wholly myself or by supervision, besides taking care of my own bees, and for years I had the charge of from 100 to 300 hives of bees, located in six or eight towns, in apiaries varying from six or seven hives up to sixty.

A good many objected to these large hives because of their expense, as they had, besides this chaff-packed end and chaff-packed bottom, an outside shell 12 to 15 inches deep, that, for winter, was let down to the bottom, and in summer it was raised so the lower edge was 2 inches below the top of the hive-body, and a cleated and rimmed-top cover. Because of the objection of expense, and the inconvenience of handling and moving these large hives, I made and used for other persons hives holding ten and eight frames; and I can, from experience and close

comparison during years of practical use, say that the large hives were, in dollars and cents, and profitable results, every way the least expensive. But if you will take a pencil, and figure up every thing, the figuring will prove that these large hives cost the most every time, and that is where figures do actually and practically lie. But with the practice of fewer hives, and the time of changing place to work from one hive to another, the time of hiving swarms, and I could name a dozen other items, to say nothing of the larger number of finished sections from each hive, that alone is item enough to make the preference for the large hive. But when you go above that limit of the square, 18½ inches by 9½, then you can just stop—just step down and out. That I have tried, and had to own up beat.

THE HOFFMAN FRAME—WHY I LIKE IT AND WHY I DON'T LIKE IT.

It is not the spacing and fixedness of it that are its best features, but I will admit that the spaced stationary feature of the Hoffman frame is reason enough to make it universally adopted. On account of the forming of ice at the ends of the frames being the reason for using packing at the ends of the hives, I adopted the Hoffman frame in 1879. A pattern of this I obtained from J. H. Nellis, with the wide part of the end-bar made wide for 5 inches, which gave me very gratifying results; but these results the first season only raised the question of how I was to get rid of a cursed nuisance that I had heard more cursing and swearing about than would be necessary to send all the employes of A. I. Root to satanic regions; that is, the plastering of comb and honey at the ends of the combs in the hive. How many hundreds of times I have seen the plastering done when there happened to be one of those sudden heavy flows of honey! and that very disgusting thing happened in 1893 and 1894 with the Hoffman frames that you have sent out with those short wide ends. Only this past season I was called twice to tell parties what to do to stop the trouble of having the honey there at the ends of the frames, and both parties said they wished the ones who made the frames and hives were—not in heaven—"further than they were out of it."

Now, then, friend Root, make that wide part just ¾ of the length of the end of the frame; make the ends fully ¾ thick, and stop that sharpening of the edge. You go and see how many will be shoved by each other, and hear the swearing that I have heard, and you will make no more sharp edges to cause cursing.

I began using the Hoffman frame in 1878. In 1879 and 1880 I used a few with the end-bars 1½ wide the whole length, and I began to practice reversing them; and after 14 years' use, in all sorts of places, I am forced to say, give me the full-length 1½-wide end-bar, just ¾ thick; and having used 3000 pair of your reversing-wires, I do not want wood rests, for two reasons: 1.

They are more easily pried up; and the chief and second reason is, turning combs over does pay, especially when it is the cause of making the bees finish a crate of sections, to say nothing of being a convenient way to make a swarm stay at home when it is put back the next day after swarming; and those solid combs are, beyond dispute, a very great hindrance to swarming, because, without that lower space between the bottom of the comb and bottom-bar, there is no great inducement to build those cups that are such a coaxing inducement to the queen to lay in them, and send things swarming fever fashion.

A LIMIT TO THE NUMBER OF FRAMES THAT MAY BE USED IN THE HIVE.

I feel sure—yes, I can say that I *know*—there is a limit to the practical use of the number of frames used side by side. You have said, "While ten frames may give slightly better results, a twelve or sixteen frame brood-nest would give still better results." Just stop, before you, by such insinuations, "make thy brother to err." It takes years to prove such a statement to be practically true. I will admit the twelve; but fourteen I shall watch and wait, doubt and disbelieve, discourage and denounce; and the sixteen I shall discard and condemn.

Right here I will say that there are many who will say to you, "Bring on your queens to fill and keep full of brood those twelve-frame hives." Such queens have lived; such queens now do live, and such queens there will be. I have had them live to be four years old, and not so very few of them live five years in those thirteen-frame hives, and have kept their workers humming each year, so that it made me as well as other persons wonder whether those large hives did not make the queens better than the small hives; or, in other words, did not those small hives restrict a queen to such an extent that she was in some way injured by a lack of room? How does that strike you? There surely has been some evidence in favor of unlimited space being beneficial; and it is true beyond denial, in all nature, that restricting natural functions is detrimental to both life and health. Larger hives, solid combs, and queens reared out of the swarming season, are the non-swarming climax.

You may tell Mr. E. F. Quigley, p. 951, 1894, that those very late queens are the least likely to swarm — are the steadiest layers, live the longest of any queens, and are the strongest of any, because they are not exhausted while young, in early production. The proof of the pudding is in the eating of it. For years I have raised very late queens entirely, for my own use, and I have written several times about their superiority, although I have never seen the articles in print.

Woodbury, Ct.

[I do not know where you get your foundation

for thinking that I claimed for myself priority on the question of the desirability of large hives. I am, and have been, well aware that it has been brought up a number of times through our back volumes. But in former times it was dropped before any thing definite could be arrived at. My purpose has been to focus down the experience of our best bee-men into something more tangible along these lines, and a little light is beginning to break already, I am thinking.

You fail to give the *whole* of the sentence regarding ten and sixteen frames you quote, and thus give a wrong impression. I said, if you will refer again to page 952, that "I am coming more and more to believe that" such would be the case. I haven't come to that belief yet. The sentence as a whole was suggestive rather than positive, and for the purpose of calling out reports from others; and among those already received, yours is one.

As to that "cussed nuisance," there may have been some occasion for it in the case of the old Simplicity hive when the space was $\frac{3}{8}$ of an inch between the end-bars and the end of the hive. But in the Dove-tailed hives, with the space only $\frac{1}{4}$ inch, we have never heard of there being any trouble. Your experience seems to be at variance with that of the whole bee-keeping fraternity. When almost everybody was using the regular Langstroth frame with its narrow end-bar—narrow clear up—we scarcely heard of burr-combs being deposited back of them, except where the bee-space was more than $\frac{1}{4}$ of an inch.

As to the wide part of the Hoffman end-bars, the length that we use is in proportion to the depth of frame used by Hoffman. I have tried them (the wide part) deeper, but I did not like them so.

Mr. J. has suggested some practical thoughts, although I think he is inclined to put some things overstrong.—Ed.]

TWO EIGHT-FRAME HIVES NOT MAKING A SUITABLE BROOD-NEST, AND WHY.

I was much interested in Mr. Chrysler's letter, on page 948. It chimed in with my experience exactly, so far as my experience goes. I ran a dozen colonies last season in two-story eight-frame hives; it worked pretty well until the honey-flow came, and then in some of them there was a marked inequality between the upper and lower stories, and two of them finally confined themselves to a single story—one using the upper story for brood, and one the lower.

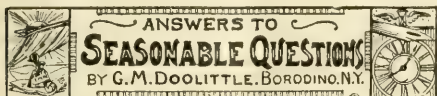
By this time, thanks to your impartial leadership, a little light is being shed on the subject—it is not altogether the mystery it formerly was. But there is one thing not yet satisfactorily presented. Most bee-keepers raise comb-honey, and how in the world is the two-story eight-frame to be recommended to them? There is too much lifting and manipulation connected with it. If the majority of bee-keepers ever get to using brood-chambers of large capacity, I am inclined to think they will "flop" just as Mr. Chrysler did, and as I propose to do. But, let's hear all sides. I would suggest, as the next thing in order, that you get an exhaustive article from E. France, theoretical and practical, on the subject, "Why the two-story eight-frame is to be preferred to all

others for *comb honey*." Then get somebody of experience on the other side (like Dadant) to answer Mr. France's point in detail. We are not through with the hive discussion yet.

Put the case of a man who winters his bees on the summer stands: How much lifting will he have to do, ordinarily? The argument of weight has been made too much of. It is not a general, but a special consideration.

Arvada, Col., Dec. 24. F. L. THOMPSON.

[Mr. France has already set forth his views on this question—see page 45, Jan. 15th issue. Yes, we should be glad to have the Dadants review this whole question from their standpoint, if they will. For many years they championed large hives alone. Now that there are more on their side, perhaps they can set forth their views with more assurance.—Ed.]



GUARDING AGAINST STARVATION.

Question.—What is the best way to guard against bees starving before feeding can be done in the spring? I have fears that my bees have not honey enough to carry them through till warm weather comes.

Answer.—As our questioner asks for "the best way to guard against bees starving," I am inclined to answer that the *best* way is to *know* that each colony has sufficient honey or stores in the fall to last it till the flowers bloom in the spring; and if we know this we need have no fears as to their safety along this line. But some one will ask, "How much stores should each colony have that I may know that there is no danger of starvation?" That is right; ask all such questions you like, for in former years it was just such little things as these which bothered me, and, strange to say, these little things, as most bee-keepers call them, were the hardest questions to find answered in our bee-papers. I hunted through volumes before I could find the amount, given by any writer, that it would take to winter a colony of bees safely from October till May, doing this hunting in the columns of the bee-papers published prior to 1875. The amount which I found first, gave 35 lbs. of actual stores as being the right amount of food necessary to carry a colony through. This almost staggered me, as I had found by weighing the combs of honey in each hive, that not one of my colonies contained that amount, while very few contained 30 lbs. So I kept on looking, when, after a while, I found another writer giving 25 lbs. as sufficient to winter a colony which was to stay all winter on its summer stand, and 20 lbs. for those colonies which were to be wintered in the cellar, during the four months of the coldest weather. "Here," said I, "is some-

thing worth more to me, just at this time, than all I have paid out for bee-papers up to the present;" for had I been obliged to make the stores in all my colonies up to 35 lbs., the sugar would have cost me much more than all I had paid out for bee-books and paper so far.

To digress a little, I wish to say that hardly a year passes, even after I have been constantly reading up bee-literature for the past 25 years, but that I find something during the year that is of more value to me than all the bee-papers have cost me for that 25 years, and yet not a fourth of the bee-keepers in the United States take any bee-paper. I never could understand this penny-wise-and-pound-foolish plan that so many adopt when you urge them to take one or more bee-papers. But to return:

By exchanging combs with my colonies I was enabled to give each colony wintered outdoors, 25 lbs., and 20 lbs. to those wintered in the cellar, and found all came out well; so I set these figures down as the right amount of stores for safe wintering from flowers in the fall to flowers giving honey in the spring; and to-day, about 17 years having passed since I read that statement, I would advise the above amounts as being correct for the beginner to put as the standard. But it will be noted that our correspondent does not say from flowers to flowers, but till "feeding can be done in the spring." Well, how much is needed in this case? This is something different, and something not often spoken about, yet it is something we should like to know about; for I claim that, if there is any time when it is profitable to feed colonies to keep them from starving, it is in the spring of the year. Why? Because if we let them die now we lose all they have consumed thus far; and, besides, feeding in the spring gets the colony in the very best possible shape to give a big yield of honey during the honey harvest; and as this latter is conceded by all, it is often to our advantage to reserve the feeding necessary to be done to give sufficient stores during April and May, till April and May arrive, providing we can know that no colony will starve before that time. One fall I found my colonies quite light; and as I was short of money to buy sugar with, I allowed only 18 lbs. to each colony designed to be wintered on its summer stand, and from 12 to 14 for those to be placed in the cellar, and found, by equalizing the stores in all, that I did not have to feed that fall. From a trial of this amount for ten different winters, and not having a single colony starve or require feeding before April first, I lately let all colonies go into winter quarters that have 12 and 18 lbs. respectively, and feed all that are short in the spring where necessary, but so far have had to feed but very few at all.

But we will suppose that our colonies have been neglected in the fall from a lack of knowledge of just how many pounds each colony

should have, or from sickness or a pressure of business, how are we to guard against the bees starving? As I object to feeding bees during the winter months unless absolutely obliged to to keep them from starving, I adopt this plan along the line of "guarding."

On some mild day when it thaws a little, without the sun shining (can see best on a cloudy day), go over all the colonies outdoors by removing what you have over the quilt or cloth covering to the frames, and then gently roll this covering up till you come to the cluster of bees, when you will carefully note the amount of sealed honey you can see not covered with bees. We will say it is about the first of February when you do this. If you find plenty of sealed honey along the top-bars of the frames, you can set that colony down as having enough till April. If plenty in half the combs, then it is good till March. If very little, then it should be looked after in two weeks; and if none at all, it should be fed at once. All not needing feeding at once should be left with the hopes that a day warm enough for the bees to fly may occur, when all needing attention should be attended to; but should no such day occur, then they should be attended to before they starve, no matter what the weather.

Well, how shall we feed at this time of year? My way has been to take frames of honey from those in which I see much sealed honey, and give to those about to starve, taking out the outside combs of honey on any day when I could best do so, and putting division-boards in their places. I now place these combs of honey in a warm room for four or five hours till they get thoroughly warmed through, when I go to the destitute colony, take out one or two empty combs on the outside, divide the frames near the center of the cluster of bees, using smoke to keep them from flying, and set in the warmed combs. In this way any apiary which was not in nearly a starving condition in the fall can be brought through till we can feed in the spring. If the colonies are in the cellar, and are where the combs can be got at, they can be looked after in the same way. In the spring the feeding is done with feeders in the regulation manner, but feeding with any thing but combs of sealed honey during the winter months is very unsatisfactory, as a rule.



AN INVESTMENT THAT PAID.

Early last spring it was my good fortune to receive an offer from a party living about ten miles from here, to sell me her entire outfit of bees, hives, tools, etc., for \$40. I went to see the "outfit," and found fifteen colonies of bees,

pretty fair Italians, an extractor, two honey-knives, Bingham smoker, several hundred sections, and about 250 brood-combs, together with nearly 100 old hives that were fit for nothing but kindling-wood. The trip resulted in my accepting the offer, providing they would deliver the whole lot at my place, which they did. During the season they threw off several new swarms, only two of which I secured, the rest going off, owing to my absence from home. They stored 500 lbs. of honey, which I sold at an average price of fifteen cents per pound. From the old hives, musty and broken combs, I secured 75 pounds of wax, which I sold at 24 cts. per pound. I transferred them from the old Quinby frames to the new Hoffman, and in the two-story chaff hives. In preparing them for winter I doubled them up and now have 12 colonies in fine condition; enough kindling-wood for the winter; 100 brood-combs, Quinby size; 500 pounds of honey at 14 cts. per pound, \$70; 75 pounds of wax at 24 cts., \$18; total, \$88.

First investment, \$40; new hives, \$18. Balance on hand, notwithstanding the "bad season and locality," the pleasure and experience, \$29.90.

VAN E. FREEMAN.

Joilet, Ill., Jan. 5.

THE READING OF FOREIGN BEE-PAPERS AT THE CONVENTION; WHAT THE EDITOR OF THE "BIENZENZEITUNG" THINKS ABOUT IT.

In regard to the reading of the foreign papers at your St. Joseph convention, I am of the opinion that Mr. Hutchinson, in his *Review*, is somewhat astray in his position. Mr. Abbott, I think, sees the matter from the right standpoint. I would not have written my article, to be published only in your bee-papers, without payment. Reading my paper in a more condensed manner would have made it worthless. I wrote it as an honorary member of your association, honoring your association and not myself the least. What my friend Frank Benton has said in regard to the invention of the movable-comb hive by Dzierzon, I appreciate. But I have not expressed myself in the right way. I should have said: "Dzierzon invented (as Langstroth in America) the only first *practicable* movable-comb hive—a hive that could be used better than any other invention before, and therefore they were starting a new era."

I have read GLEANINGS with much pleasure, and not the least the Notes of Travel by your father.

C. J. GRAVENHORST.

Wilsnack, Germany, Jan. 2, 1895.

HONEY CANDYING BEFORE COLD WEATHER, AND WHY.

I wonder if you have had an experience like mine. This year, when I extracted in September, combs that were built and filled in August contained many cells of candied honey, just as taken from the hive; and all extracted thickened soon after, before any cold weather came.

What is the probable cause? No syrup was fed till after that time. C. H. LUTSON.

Bridgewater, Mass., Dec. 20.

[Honey from ordinary sources does not candy before cold weather; but certain kinds will granulate very shortly after being put in the combs. The fact that the honey was gathered in August (after the usual flow from basswood and clover) shows that it must have been from some unusual source.—ED.]

WERE QUEEN-EXCLUDERS USED IN THOSE TWO AND THREE STORY HIVES?

I read in GLEANINGS for Nov. 15, 1894, where they tell of those big honey-yields in two and three story hives. The question in my mind is, did they let the queen have the run of the whole hive, or did they use a queen-excluder? Please tell me, is it best to use a queen-excluder for extracted honey? FRED CARD.

Burns, Mich., Dec. 15.

[I can hardly answer in the case of the honey-yields in question; but I should *suppose* that, in most localities, the excluders would be put on top of the second story. In localities less favored it would doubtless have to be put on the first story. The strength of the honey-flow would have to decide the matter largely.—ED.]

THE CROSSES OF FIVE-BANDED BEES.

I see on page 23, GLEANINGS for Jan. 1st, that the editor has something to say in regard to the crossing of five-banded bees with blacks. My experience and his are not alike, as I have never yet seen a five-banded queen mated with a black drone make all yellow bees. On the contrary, they *always* make some black bees, the same as any other hybrid queen or mismatched queen. Now, a five-banded queen can mate to a three-banded drone or to a hybrid, or to any drone whose mother has any yellow about her, and, likely, she will not make any black bees. My experience along this line is, that any yellow queen, it matters not what stock she is, will make some black bees, or nearly so, if she is mated with a pure black drone. I was of the same opinion as Ernest till I thoroughly tested this matter, and now I feel convinced that, when the bees of a five-banded queen show no black bees, she has mated to a drone that had some yellow blood too.

I have asked the opinions of two or three of our most extensive breeders of five-banded queens, and they take sides with me. I think that, when a five-banded queen mates with an impure drone, her bees as a rule will be cross, as most other hybrids are. Not, will the queens make some black bees? but they will make some of the blackest black bees I ever saw. We had one yard out last year, and thought we were putting them out away from other bees, and we soon found that there were black bees near them, and moved them away out on the prairie, and some of our queens were mated before we found out that blacks were close; and I tell you we had some of the blackest black

bees we ever saw, and the queens were from our best five-banded mothers, and they made bees from pure blacks, as far as color goes, up to five-banded, and the bees were as cross as hornets.

I fail to see where the five-banded bees, crossed with any other race of bees, makes them more cross than other hybrid bees. This I mention as I thought of it.

Now, Ernest, you and I will have to fight it out, and I am going to hold my ground as long as I can honestly; and when I see you are getting the best of it I will give it up; but I must say that I think you are away off on this statement, and do not see where you are going to get out unless you walk backward. As for breeding bees for color alone, I think one should be ashamed to do such a thing, and sell the queens, as such a breeder would soon play out, and at the same time injure his fellow-man. I have come to the belief that queen-breeders should be the most careful of apiarists, as they have the reins of the honey-producer, and may lead him to ruin by breeding from any and all kinds of queens. I tell you, it is a serious thing, as well as a matter of dishonesty, for a queen-breeder to use any thing but the best of queens for mothers. I know that I have got off the track, but I just thought of these things, and made mention of it. I should like to hear from others on this subject.

Beeville, Tex., Jan. 17. JENNIE ATCHLEY.

Friend E. R. Root:—I notice in January 1st GLEANINGS, page 23, an editorial stating that a cross between a queen of five-banded stock and a black drone or a five-banded drone and a black queen will, according to your experience, result in all the bees showing at least three bands, etc. I am quite surprised to hear you say this, as my experience does not coincide with yours. Last season I gave the cross-mating of several different strains of bees a thorough trial; and I find, so far as my experience goes, that a cross like the one you refer to will result in producing bees that show from one to three yellow bands, and quite often there will be bees that are produced in this same colony that are as black as the blackest bees I ever saw. Please bear in mind that I am speaking of a cross between five-banded stock and *pure* (German) black drones. I should be pleased to hear from some other queen-breeder in this line, through GLEANINGS. F. A. LOCKHART.

Beeville, Tex., Jan. 17.

Dear Mr. Editor:—Did your hand tremble a little bit when you wrote that editorial on mismatched five-banded queens in last GLEANINGS? I have had numbers of them mated with black drones in the past four years, and not in one instance have I found one producing all straight three-banded bees. Who told you about that?

Chrisman, Tex.

C. B. BANKSTON.

[See editorials.—ED.]



DON'T fail to read A. I. R.'s hints on shipping comb honey during cold weather, in this issue—see page 107.

Two bee-journals now hail from one State. The *Nebraska Bee-keeper*, in its sixth year, and the *Nebraska Queen*, in its second year.

THE article by the Porters, on bee-escapes, will be read with interest, although it seems to have been written for the editor's private ear.

I HAVE just found out who "M. Dea" is, in the *American Bee Journal*, but I shall not tell who he is. In our next issue we shall have a communication from him in our own columns.

AN excellent portrait of Dr. Miller appears in the last *American Bee Journal*. It shows him as he now looks—not so strong and rugged physically as in former years when he sat for his picture, but not one whit older in spirit.

THE paint-mill referred to in a former editorial is now here. We are experimenting with it, grinding up coarse sugar and honey, but so far I am unable to tell whether the results will be favorable or not. Reports will be given later.

I WONDER how many have a comfortable feeling during these cold days (as we find them up here in the North), in the thought that their bees are put in winter quarters in a condition as nice as they knew how to put them. If the winter continues as it has been for the last month or so, it will be a severe one on bees not properly provided for.

I HAVE learned with much regret that Mr. C. E. Parks, Secretary of the G. B. Lewis Co., of Watertown, Wis., and senior member of that firm, is dangerously sick in Florida. Mr. Parks is a man who is well known, not only to the trade, but to the general bee-keeping world, and I am sure I voice the feeling of all in hoping for his speedy recovery.

WITHOUT a single exception, I believe, all the queen-breeders have held up their hands, signifying their purpose to destroy the first case of bee-paralysis as soon as it shall be discovered in their yards. This policy, I feel sure, if adhered to, will stamp the disease out of existence; but if we get the idea in our heads that such extreme measures are not necessary, no such favorable issue may be expected.

I LEARN by the *American Bee Journal* that there is a possibility of Hon. Eugene Secor becoming Governor of the State of Iowa. Good!

I know nothing about his politics; but I would vote for him (if I could) though he were nominated by the Democrats, Republicans, Prohibitionists, or Populists. He is a thoroughly good man in more ways than one. It is this kind of men we want in public office, irrespective of party lines.

I FIND we are again obliged to leave over a number of good articles. Possibly some of them may never see the light of day through the pages of GLEANINGS; but I shall endeavor to give the best of them, and trim down others to the point of solid meat. I might mention here, that one of the most interesting articles we have ever published on bee-paralysis will appear in our next issue, from the pen of that careful and laborious worker, Ph. J. Baldensperger, of Nice, France.

THE story is going the rounds (see the *American Bee Journal*) that Dr. C. C. Miller read an essay at the Illinois Bar-keepers' convention. It would be a "rough one" on the doctor (and probably a good deal rougher on the convention if the doctor had it to do) did we not know how easy it is for a printer to mistake "Bar-keepers" instead of "Bee-keepers," from ordinary handwriting. Or perhaps the mistake was in the telegram, for the printer would hardly make the mistake twice in the same item. Yes, such conventions need a little of Dr. Miller's salt. I hope the doctor's past record will enable him to live down such a report.

THE following sad news is just received from our brother-editor of the *American Bee Journal*, and will explain itself:

A beautiful baby girl came to the home of the editor of the *American Bee Journal* last Friday evening—Jan. 18; but it stayed only a few hours. Of course, there are sorrowing hearts, for its mother and I had hoped so much that when the baby came it might stay with us, and be a great joy and blessing to our home. But, although 'twas hard to give up, we bow submissively to the will of Him "who giveth, and who taketh away."

Mrs. York is doing fully as well as could be expected under the circumstances, I am thankful to be able to say.

Bro. York has our sincere sympathy. These little people, as I know by experience, bring a world of sunshine to the home. I do not know what it is to have that sunshine taken away, for the kind Father has spared me that pang.

IN the department of Kind Words will be found a few reports of the successful mailing of queens to Australia and New Zealand. We have other reports that we do not publish, where the queens went through dead; but as nearly half of the queens went through alive, we feel greatly encouraged, and are in hopes that we shall be able to master the problem after all. The whole secret rests in getting the

candy just right. The candy we last used was made of coarse granulated sugar and honey, with a very little of the pulverized to stiffen the dough. Among those where the queen went through dead, the cause was evidently starvation. The honey had all been taken out between the granules of sugar, and the dry particles of the latter were no better than so much sand.

THOSE CROSSES OF FIVE-BANDERS.

In another column will be found a reply by Mrs. Jennie Atchley and F. A. Lockhart, to the editorial on page 23, to the effect that a cross between a black drone and a five-banded Italian queen does not necessarily show one and two banded bees, but that such bees show all the characteristics of ordinary hybrids, with the exception of color. Mrs. Atchley's experience and that of Mr. Lockhart seem to be diametrically opposite to ours. As she says, let us hear from others on this point. It is only by getting testimony from quite a number that we can form a really decided opinion on this question.

As to my own statements on page 23, I have just been out to ask our apiarist if I had made any mistake. He says not. He is very positive that some of our five-banders, while showing good color, were crossed with hybrids, because their progeny is so fearfully cross. We obtained five-banders from a number of breeders; but as not all of them are cross, I can not say that Mrs. Atchley's bees that we received showed any bad traits. Indeed, so far as I have been able to trace them they were gentle and beautiful, and in several instances were energetic and good workers. As Mrs. Atchley breeds from original Doolittle stock, and, I have reason to believe, takes more than ordinary pains, I assume that her stock is both beautiful and energetic. Mr. Lockhart, I believe, has the same stock.

WIRING BY MEANS OF ELECTRICITY.

We have not said much of late about imbedding wires into foundation by means of electricity. It is not because we considered the plan impracticable, nor because we have found another and better way — nay, far from it. We could scarcely drive our people to imbedding wires with the old-fashioned spur-wheel, so slow and unsatisfactory is it, compared with the neat and rapid method by means of electricity. But perhaps some of you may have forgotten how to construct the battery. Secure three crocks, of not less than a gallon capacity each—larger will make the batteries run longer; and where much imbedding is to be done, crocks of not less than five gallons capacity should be used. For about a cent apiece you can get electric-light carbons at the nearest electric-light station—just such carbons as are used for arc lights. You will need, for

each cell of your battery — that is, for each crock, three long carbons or six short ones. Now, for each crock secure a square board of inch stuff, to cover it. Describe a circle on one of the boards, the circumference of which should be about two inches smaller than the inside diameter of the crock. On the line of this circle bore six holes equally distant, just large enough to receive the carbons. Wire these carbons all together by running a naked copper wire around each carbon a couple of times and then pass it on to its neighbor. Proceed thus with each board. In the center of each circle bore a hole large enough to receive a rod of zinc, the size and length of which is immaterial. If you can not get rods, take sheet zinc and roll it up to about an inch in diameter, and as long as the carbons. Solder a wire to each zinc. The wiring to each cell or crock should be so arranged that the zinc of one battery will be attached by its wire connection to the carbons of the other battery, and so on until you have one free end of the wire from the carbons of one cell, and one free end from the zinc of another crock—the other cell being connected with the other two. These two free ends are to be attached with spring clips, in such a way that they (the clips) engage, or come in contact with the two ends of the wire running through the frame to be filled with foundation. Now, then, before you proceed to work you will need to throw into each crock, say for the three-gallon size, a couple of pounds of bichromate-of-potash crystals. Fill the crock to within $1\frac{1}{2}$ inches of the top, with hot water. Allow it to stand three or four hours, and then pour about a gill of sulphuric acid into each crock; stir; insert the zinc and carbon element, and you are ready for business.

We have experimented with almost every form of galvanic battery that we could learn or read of; but none gave anywhere near such satisfactory results, for the money, as the one just described. If you do not reckon your time at night and mornings, the whole outfit ought not to cost you more than 75 cts., including the chemicals and all.

One charge for the five-gallon size ought to imbed about 1000 frames; but after you have put in about 200 frames you will need to let the battery "rest," i.e., recuperate itself, which it will do in about three or four hours; then you can imbed a couple of hundred more. The activity of the battery may be greatly assisted by stirring the solution occasionally while working it.

We used this form of battery until last season. During the fall, one of our young men of an electrical turn of mind constructed for us a small dynamo, which furnishes a current both for a storage battery which runs the phonograph, and for imbedding foundation. All we have to do is to throw on the belt, and the current is ready at any moment. Of course,

this arrangement is very much superior to the battery, but its cost is twenty or thirty times as much.

THE DOVETAILED OR LOCK-CORNER JOINT IN BEE-HIVES; IS IT A FAULTY CONSTRUCTION?

In the *American Bee Journal*, an interesting series of articles is being written by Mr. Emerson T. Abbott, under the caption, "Production of Comb Honey." In the second article, in the *Journal* for Jan. 24, in referring to the right number of frames for a hive, he shows a decided preference for the eight-frame. Among other things, he says that such a size of hive does away with the necessity of contracting the brood-chamber at any time, and this, he adds, saves the expense of division-boards and contracting. So far we agree. In discussing "the methods of putting hives together," there are some of his points with which I do not agree. "I have been led," he writes, "to wonder a great many times why the so-called dovetailed method has had such a run, as there seems to be some serious objections to it." As one of these objections, he thinks it has been wrongly named, and then proceeds to define the true dovetail. Surely a wrong name is not an objection to the thing itself. Regarding the name, I would say this was originally adopted because it is a term better understood by bee-keepers who have long been used to the same adjective when applied to four-piece sections. Of course, the same objection would apply to the sections. We have, in fact, all along, in referring to the hive in question, called it *both* dovetailed and lock corner; and our 1895 catalog, now ready to be mailed, distinctly refers to it as the dovetailed, or, "more properly speaking, the lock corner."

Mr. Abbott further gives it as his opinion that this joint has nothing about it which renders it superior to the ordinary halved plan, because, he says, "it adds neither strength nor lightness;" and, further, that "it is much harder to set the hives up square, as one has to be very careful in nailing them."

These objections hardly apply to hives of our manufacture—at least, those from our present automatic machinery. And on looking up our records I find that Mr. Abbott has never had any hives of us, of the dovetailed pattern, and I therefore wonder what sort of dovetailed hives he must have had experience with. If he could spend half an hour in our establishment, I'll bet a cooky we could convince him, without a question, that *our* dovetailed or lock-corner joint is far stronger than any halved hive-joint, because *actual tests*, over and over again, have proved it in our shop. By the halving plan the boards bite on each other only half way; by the lock-corner plan the boards bite on to each other the whole way; and added to this is the friction of the fingers, as it were, hugging against each other. By the halved plan, the

strength of the corner depends entirely on the nails; but not so in the lock corner.

I have yet to see a dovetailed hive, when properly nailed, gap at the corners through the influence of the weather, for it is next to impossible; but when the boards are put together by any other plan, a very large percentage (I think I should be safe in saying 50 per cent), after three or four years' time, will show a slight gap, owing to the effects of the weather. In my travels among bee-keepers I have made this a particular point of observation. Moreover, with the bee-keepers in Colorado, California, and in other places where they have those hot winds and a glaring sun, nothing seems to stand so well as the lock corner. These are facts, as I happen to know. Again, we have an unpainted hive of the dovetailed pattern in our yard, that has been exposed to the weather for six years. It is as good as new, so far as the corners are concerned. It shows not the slightest trace of rotting along the notches. There is still another consideration: Dovetailed or lock-corner hives save freight, because four cleats of wood, an inch square, will hold securely 20 sides or ends of the hive, without any additional crating. By the use of our automatic machinery, the expense is very trifling; and this is more than made up by the great saving in crating, in lumber, and time of putting up the hives. It follows, therefore, that, by dovetailing, we save expense to the purchaser.

Mr. Abbott does not like the Hoffman frames. I do not know how much he has tried them; but on this point I recognize that there may be an honest difference of opinion, and in view of this we have for several years back (as we do this year) given our customers the option of a loose unspaced hanging frame.

THE DIFFERENCE BETWEEN FAULT-FINDING AND KINDLY CRITICISM.

I admire the courage of Mr. Abbott's convictions, for I believe that he is honest in them; and I admire, too, that quality in his writings that speaks out plainly, even when they run counter to the views of some of his friends. Indeed, I know he has a very high and warm regard for all the folks here at the Home of the Honey-bees, although he does not see some things as we do. We can always accept the criticisms of friends, and take them in the spirit in which they are written. We all prefer outspokenness far more than outward palaver to the face, and behind the back a dagger-thrust. We here at Medina welcome criticisms that are given in the spirit of kindness, and for the purpose of getting at the truth, and for correcting error; but we ignore those that are manifestly given for the purpose of unloading some pent-up feelings of animosity on the part of those who are constantly *seeking* something with which to find fault. There is a difference—yes, a wide one—between *fault-finding* and kindly criticism.



ON THE WAY TO FLORIDA.

Well, business has been all looked after. I have traveled all over the grounds, from down where the men are cutting ice on the carp-pond, all over the rooms, up stairs and down, through the greenhouses, and given directions for my department of the work until every thing seemed done for my six-weeks' absence as well as it could be done.

After half an hour's ride on the cars we were obliged to wait four hours in the evening at Grafton, O., for the train to Cincinnati. Now, we might have sat during the whole four hours in the waiting-room of the depot; but the stove smoked, the room smelled of something more unpleasant than simply coal smoke, and so I told Constance we would see if we could find a place a little more homelike. Just across the track was a hotel, and a pleasant-faced woman seemed to have charge of it. A nice homelike sitting-room was soon placed at our disposal, with easy-chairs, sofa, and pillows—plenty of lamps, carpets, and all sorts of homelike fixings. She said there would not be any charge for simply waiting there until the train came, and even tried to refuse the coin I offered her. I, however, insisted that she should take it. I told her folks couldn't keep a hotel and supply nice warm furnished rooms for nothing. I soon appropriated the lounge and pillow, for I very much needed a nap after my busy day. After my rest I passed the evening very agreeably with two of my favorite agricultural papers, the *Rural New-Yorker* and *Country Gentleman*.

Let me digress enough to say that I have been continually surprised for some time past to see what an exceedingly valuable paper, for high-pressure gardening as well as farming, the *Rural New-Yorker* continues to be. When they put the price down to only \$1.00 a year, it seemed to me next to impossible that it could be kept up to such a high standard of value; but they have held their own so long that it looks as if they were going to keep it up. Although it is weekly in its visits, it seems to me that single issues are frequently worth the price of the whole year.

I presume the average waiting-rooms in our railroad stations are as comfortable as can be afforded under the circumstances; but whenever there is a hotel near I certainly would willingly pay a quarter for the comforts of a home, for two or three hours.

SOME HINTS ABOUT SHIPPING COMB HONEY.

In Cincinnati we made a very pleasant call on C. F. Muth. He and his son are, as usual, busy in the honey business, and perhaps this is a good time to call attention to the fact that it is risky business trying to ship comb honey during zero weather. Somebody sent friend Muth a shipment, saying that he must have 14 cts. for it. He added, further, that, if any of the honey was broken in transit, Muth should not receive it from the railroad company, but proceed to make them pay damages for said breakage. Now, there are three mistakes in the above method of doing business. In the first place, there should have been some correspondence with Muth before shipping him honey; while in fact, as I understood it, there was none. Muth advertised, as it seems, to pay 14 cts. for first-class white-clover honey; but none of this shipment was first-class, and a consider-

able portion of it was really third or fourth class. Again, Muth isn't in the commission business. He buys outright; therefore it was out of the question to tell him, after it was shipped, that he could not have it for less than 14 cts. Third, no one can make a railroad company pay for honey broken in transit, especially when shipped in zero weather, unless it can be shown that the damage is in consequence of bad handling, and not through any fault of the shipper. Of course, friend Muth could have left the honey in the hands of the railroad company; in fact, I do not know but he renders himself liable in taking it from the depot; but quite a little of it was in such shape that it would have been a total loss if Muth had not taken it, put it in stone crocks, and awaited instructions from the shipper. He told me he would willingly pay the freight and ship it all back to get out of a bad job, if the shipper would accept it.

One reason why it broke out of the sections was that the honey was not securely fastened in by the bees all around. A careful study of the directions for managing, in our bee-journal, would have led the producer to remedy this matter. In fact, very much of the trouble in shipping honey has been on account of lack of attention in this one respect—getting the bees to fasten the honey securely to the wood of the sections clear around. I fear a good many bee-keepers do not understand this, or may be they have never seen a crop of strictly first-class comb honey.

While in Cincinnati we were kindly entertained by the Rev. Norman Plass, former pastor of our church in Medina. He now has charge of the Vine St. Congregational Church, Cincinnati. I was much interested in looking through the church and various rooms for the Sunday-school, Endeavor Society, and other meetings of the young people, and I want to tell you about his

SUNDAY-SCHOOL THERMOMETER.

It caught my eye as soon as I looked into the Sunday-school room, because it seemed to be some sort of scientific instrument. It is simply a piece of wood, in shape, and lettered and graduated similar to a common thermometer-scale, only larger. It is a piece of board perhaps four feet long. Through the center of the board lengthwise a groove is cut about where the glass tube would come in a thermometer. Instead of a glass tube, however, it has a large round cord stretched on pulleys, one pulley at each end of the scale. This cord, half its length, is dyed or painted black. The other half is left white. The superintendent, by pulling on the cord at the back of the instrument, runs what appears to be the column of mercury up or down, and this is the record of attendance. The pupils all watch eagerly to see whether the attendance on any Sunday is high or low, the figures running from zero to 250 or 300. (In smaller schools, say of 25 or 50, the scale may be made accordingly.) The secretary, after he has counted up the pupils, makes the thermometer show the number present where all can see it, and the high or low temperature, as you will notice, rests entirely on the efforts of the pupils and teachers. If they want to make the mercury to stand high they must bestir themselves to bring as many as possible. While such an instrument may not indicate exactly the *spiritual* growth of the school, it at least approximates it.

When we opened our eyes in the morning we were in the vicinity of Montgomery, Ala.; and as we turned eastward, toward Jacksonville, the deciduous trees began to give place to beautiful varieties of evergreens, pines, and magnolias, with here and there trees of various kinds

draped with the beautiful Spanish moss. Occasionally, also, we get a glimpse of the palmetto, or *Lantana*. Cotton-fields are everywhere; but, owing to the disastrous drouth of last season, a good deal of it was hardly worth gathering. This, in connection with the low price of cotton, might well make our Southern friends feel poor and discouraged. As we look out of the car-window, beautiful little evergreens, less than a foot high, and from that up, greet us at every turn; also a beautiful undergrowth, something in the line of rhododendrons or laurels. All these, with occasional glimpses of the different-colored earth, make up a view varied and interesting. I asked the porter if this red earth was not sometimes used for making paint.

"Oh, yes!" he replied; "and one could get enough of it through Alabama and Georgia to 'paint red' the whole wide world."

In this region, cellars seem to be unknown. The houses are set up on blocks or brick piers, so that the wind can blow clear through underneath. Well, perhaps they have no need of cellars to keep things from freezing; but I am sure I should want a cellar in which to keep things cool, and to keep potatoes, apples, etc., from wilting. Another thing, a cellar is perhaps more convenient where room is scarce, and a basement can be made without any expense for roofing. Out in the country most of the buildings, especially the humble ones, are entirely destitute of windows. The only way they have of getting light is to leave the doors wide open; and even on this 17th day of January, in the middle of the winter, the doors are open everywhere. May not this fact of abundant ventilation account for the claim so often made, that, in many parts of Alabama and Georgia, people never die of consumption? that is, they never have it unless they contract it somewhere else. The chimneys are invariably built on the outside of the cheap houses in this country.

For some time I was puzzled to know the purpose of a small light ladder that stood near the chimney. I finally decided that it was to afford access to the loft. When it is time to put the children to bed, all that you have to do is to go outside and climb up the ladder, and this gives more room inside.

PLANTING ON HILLSIDES TO PREVENT WASHING.

I am delighted to find that the corn, cotton, and almost every other crop, is planted on uneven ground, so that the furrows curve around the hillside instead of straight up and down. This is to prevent the terrible washing and cutting that occurs when the water is allowed to go straight down hill. The plan is exactly that recommended by friend Day, in the tomato-book; and in some places we see, every little way down the decline, a deeper furrow or ditch to take away the surplus water before it can accumulate and break over the furrows. Where the crop is clear over the top of the hill, the furrows circle right around the hill-top. In fact, wherever the ground is at all rolling we see these curved furrows left by the cultivator. Where this precaution is not taken, the fields are cut up and ruined. Now, this running the furrows across the hillsides has a value aside from preventing washing. During seasons of excessive wetness it takes the water off before it can be detrimental to the growing crops. It also enables the ground to dry off quickly, so that cultivating may go on speedily, and even where clay soils have been most thoroughly underdrained (the underdrains, of course, running straight up and down the hills), these surface-furrows have a great value.

THE ROSIN AND TURPENTINE FORESTS NEAR THE LINE BETWEEN ALABAMA AND GEORGIA.

I should judge we must now be in the heart of this industry, from the number of barked trees. The bark has been scraped off to get the rosin. As nearly as we can gather from looking out of the car-window, the rosin oozes out like gum from peach-trees where the bark has been removed. When sufficient has accumulated they evidently scrape it off by some means. We have not seen them doing it yet; but we see barrels and barrels of rosin at every depot; and along at the houses the people are boiling something out of doors in iron pots. Now, we can't discover whether they are cooking a dinner or boiling rosin. Will somebody from this region tell us about it? In some of the pine forests we see notches cut in the trees so as to make cavities; and I judge they dip the turpentine out of these cavities. Now, do both turpentine and rosin come from the same kind of pines? Will somebody straighten us out in regard to this industry? There are miles and miles of these scarified trees, the rosin on the trunks making them look white, like some immense cemetery.

All through Georgia we have been struck by the beauty of the pine forests. In some places the trees are as straight as arrows, about as close as they can grow, and of wonderful beauty and regularity. No wonder Georgia has been celebrated for its cypress and pine timber. But it seems to me that a good deal of it is going to waste shamefully. The trees are girdled, simply that they may plant corn and cotton between them, and then are allowed to stand until they rot and tumble down—for the reason, I suppose, that it is less trouble to let them stand than to have them down in the way of cultivation. If these beautiful trees are of no value now, they certainly will be in the near future. Some of the finest timber we have seen is in the vicinity of Bainbridge, on the Flint River.

KIEFFER PEARS.

Georgia has of late been coming to the front grandly in the line of fruit-growing, especially peaches and pears. All about Thomasville and beyond we see acres of large pear-orchards, of wonderful beauty and luxuriance. I judge them, by the looks, to be the Kieffer.

LETTER TO HUBER.

We have just passed a station, Huber, which is called "Dixie." You don't remember any thing about the old war-time song called "Dixie Land;" but I think mamma can tell you something about it. Here is a verse:

In Dixie Land, where I was born,
Early on one frosty morn,
Look away, look away,
Look away to Dixie Land!

Chorus—

Den take me back to Dixie,
Ho-ray! ho-ray!
In Dixie Land I'll take my stand
To live and die in Dixie;
Ho-ray! ho-ray!
To live and die in Dixie.

Well, Huber, what do you think of that? I do not wonder the Southern people were so enthusiastic about Dixie Land, especially if it was as beautiful then as it is now. I tell you, Dixie Land is just what you'd call "slick." The rays of the afternoon sun, as they strike the brilliant green of the pines, palmettoes, and live-oaks, give a view that is grand indeed; and the water along the side of the track makes a reflection like a great looking-glass. The water is so clear and dark and still, in fact, that the

reflection is almost equal to the reality.* Taking it all in all, I am sure you would give your verdict in your most emphatic way, that Dixie Land is "just slick." Constance says the luxuriant tropical foliage is beautiful with all the shades of the rainbow; but you see I am a trifle color-blind, and don't see much except the brilliant shades of green. It is not only the vegetation that is radiant with brilliant colors; but even the *ground itself* here in Dixie Land shines out with many tints, running all the way from white and gray and yellow sand to the brightest orange and vermillion. You see, it is this funny, sandy soil. In some places the roads look as if they were sprinkled with salt. It is only the patches of white sand sprinkled in with the rest. Wherever we see this white sand, especially where it is trodden down hard by the bare feet of the little colored boys and girls, I tell you the wheeling would be "just slick" too if I could get out to try it. And, by the way, these little colored people, with their white frocks contrasting with their shining black faces, furnish another bright element in the picture. There are free schools for these little colored people, and I rather think that is one reason why their faces look so bright and happy. It is summer time down here, even if it is the middle of January, and these children are not only barefooted, but, for the most part, barelegged. As we go past on the cars everybody is either standing in the door or outside the door.

While passing through Kentucky a sick man came on board the train with his family. His wife informed me that he was a broken down clergyman, suffering from nervous prostration, on his way to Florida. I did not talk with him until we were near Jacksonville, as I feared it might aggravate his trouble to see strangers. An accident, however, opened the way; and when I introduced myself he replied something as follows:

"My dear sir, I am delighted to make your acquaintance; for, to tell the truth, I have gotten acquainted with you already from overhearing you dictate to the young lady. I could not well help listening; and the more I listened, the better I felt satisfied that it was intended for the great public ear. I heard you tell about the smell in the waiting-room that was something worse than coal-gas, and I was very much interested in the Sunday-school thermometer."

We exchanged experiences, and I believe I gave him faith and hope, besides some ideas of my own in regard to "doctoring without medicine." His wife's aunt accompanied them, and I was greatly interested in her because she was born blind. After hearing something of her from Constance I introduced myself, and she invited me to sit down by her side. She can not tell the difference between the broadest daylight and the darkest midnight; has no perception at all of shade and shadow. Of course, she can feel the heat of the sun, and is unusually sensitive to all these influences. She has no idea of color or brightness excepting what is told her. Said I, "My good friend, if you succeed in being happy and thankful while you are for ever shut out from sight and light, how ill it becomes us to complain of our lot, especially when this great affliction is no fault, in any sense, of your own. Some in your condition might complain, and with quite a show of reason, that the great Father above is unfair. You remember, of course, the disciples asking the Savior, 'Whose fault is it, this man's or his parents', that he was born blind?'"

*Cousin Louise has told me since that it is the roots of the palmetto that dye the clear water black, or dark colored, so that it reflects the landscape almost like a polished steel mirror.

She caught hold of the idea quickly, and replied, "Oh, yes! and I have often thought of his answer, that 'it was through no fault of the man or his parents, but that the will of God might be made manifest.'"

Then I suggested that the great lesson to her was to have faith to believe that God had some plan or purpose, even in her case, to manifest to the children of men his wondrous providences. I shall always remember how that expressive face, even despite the sightless eyes, brightened up as it seemed to look up and grasp for faith. As I dictate, the words come into my mind:

My faith looks up to thee,

Thou Lamb of Calvary, Savior divine.

I suggested that her darkness was not to be compared with that of those who, "having eyes, see not; and having ears, hear not," and she at once replied that she by far preferred her lot in life to the darkness of sin and a guilty conscience, and without the light of the gospel.

She had heard of Helen Keller, and I promised to send her the book telling all about Helen's wonderful experience. She said her niece's children were quite ready and willing to read to her. If any of you wish to address her, send in care of G. W. Yancey, Ocoee, Orange Co., Fla. Perhaps I may mention that her mother was exposed to the measles, and took it shortly before her birth, and thus a human life of darkness.

As I sit out on the veranda which opens out from my pretty little bedroom in Jacksonville, Fla., the bees are humming in the soft-maple blossoms that spread out almost within my reach. I sat here in my shirtsleeves, and penciled a card to my old mother before 10 o'clock in the morning. When I left Medina a good many urged me to leave my wheel at home, as I could never make a bit of use of it in Florida. Even Ernest (and I am surprised at him) suggested that it would be more trouble than it would be worth, from all the reports he could gather. But as soon as my wheel was uncrated I took it to carry my postal to the letter-box, and found out by somebody that there was a brick pavement a little way off. I reached there by means of the sidewalks. Then I ran up past the waterworks, where three artesian wells were pouring forth beautiful water, looking much like those wells I described on my Missouri trip.

About this time I struck a shell road, and, under the inspiration of this beautiful track, the exhilaration of the springlike air, and encouraged by the chirping of the tree-toads, I declared to myself that I would follow that shell road wherever it wended, even if it took me twenty miles or more. Why, I never saw a finer wheel-track in my life. The graveled pikes in Western Ohio are in no respect better—hardly equal—because they are not on such a dead level. One can ride miles without touching the handle-bar at all.

After a trip of about five miles, curving around through beautiful piny woods, palmettoes, magnolias, and various glossy-colored underbrush, I came to the Jacksonville cemetery. As it was near the dinner-hour, after a hasty trip through the grounds I sped me home again, and made the trip of five miles in just 17½ minutes, besides getting lost; and I might have been considerably longer had not Constance called to me from the aforesaid balcony above, asking me why I was spinning right *past* the house where I lived. Now, others may say what they please; but I for one think it pays to take a wheel along on a Florida trip, just for the beautiful rides around Jacksonville, even if there shouldn't be any thing like it in any of

the other towns. When I reached the end of the shell road, at one point I tried my hand at wheeling through Florida sand. I was obliged to give it up; but a lady informed me that the sand *here* was not a circumstance to what I should find in South Florida. On a pinch I could make better speed than to walk; but it was pretty hard work, if followed any length of time.

THE ARTESIAN WELLS OF JACKSONVILLE.

As I started out early one morning to make explorations I noticed a place for watering horses; and as the water came out of the iron pipe it seemed to be steaming. On touching the pipe I found it quite warm. The water, too, seemed to be toward 70°. Later in the day I visited the artesian wells. There are three of them. The two first that were drilled were put down to a depth of 600 or 700 feet. The last one, which gives the largest volume of water, is down to something over 1000 feet. The constant temperature of the first two is about 70°, while the deepest is a little over 80°. Now this, you see, is warmer than we need our living-rooms; and, in fact, warm enough for tropical plants in a greenhouse. But no one has ever yet, that I know of, made use of this great storehouse of heat, to warm buildings, to grow plants, or any thing of this sort. Why, I should regard it as a mine of wealth for the purpose of giving an absolutely even temperature; and, by the way, I have not as yet found any thing around Jacksonville, in the way of market-gardening or growing vegetables, worth mentioning. There is just one little dilapidated greenhouse, and this is used only for flowers. Why don't people make gardens where the bees are buzzing in the soft maples, and the temperature seems to be just exactly right for many hardy vegetables? I said to the engineer of the waterworks, "Why, where does this water come from? It's away up above the ocean, and away above the St. John's River. Is there no elevated body of water anywhere around that could furnish a supply of water for these wells that have been running for so many years?"

"Well, sir, this is a secret that no man has ever yet found out. There is no elevated body of water, and, for that matter, scarcely any elevated land anywhere near. There have been conjectures by scientific men that this water stratum extends clear up to the Cumberland Mountains; but this, of course, is mere guesswork."

This water as it comes from the wells is like that at Clinton, Mo.—sulphurous; and the bottom of the reservoirs and overflow streams is decorated with all the colors of the rainbow. I supposed it was from the minerals it contained; but my friend the engineer explained: "Not minerals, Mr. Root, for this is almost absolutely pure water. These beautiful colors are the result of a species of moss, or algæ, and this vegetable growth takes place only where the water is exposed to the sunlight. See here; we have one reservoir roofed over and bricked up so as to make it dark like a cellar. There is none of this growth in this reservoir at all; but where it is exposed to the full sunlight it grows very rapidly. It commences on the stone or sand at the bottom, where the sun can strike, and gradually breaks loose and floats away, the warm temperature, 70 or 80°, greatly facilitating this vegetable growth. Here at the wells the water has a strong, sulphurous taste;

but after exposing it to the air as it pours over through the fountains, this odor at last disappears. You will notice, when drawn from the hydrants in the city, it seems to be pure water, with scarcely any taste of the sulphur at all." Now, you see we have at least a partial explanation of the wonderful mossy covering of the ponds of spring water in Castalia, Erie Co., O.; and here is a solution, too, of the cause of the mossy growth and covering surrounding the watering-troughs and streams from springs throughout our land. Put a box or tub around your spring, either of stone, brick, or wood, then have a hinged cover over it to lift up, and you won't have any of this slimy moss or scum. All you have to do is to keep away the sunlight, and it can't grow. One of the agricultural papers recently stated that whitewashing a watering-trough, or even placing a lump of lime in the water, would keep away the moss. You see the idea is, that the moss is a vegetable growth, and propagates itself, and grows in the spring water, simply because this water furnishes the desired temperature, especially where it flows out into the sunlight. And this slimy moss, then, really is not found at all, nor even the *elements* that go to make up its growth, in the water itself, as it comes from the ground or rocks. I am glad to know this, for I had a sort of notion that the water was not pure where this sort of deposit was all along the outlets of the spring. And, by the way, may not this mossy substance be utilized? At Castalia great quantities of snails breed in it as it floats on the surface of the still water in the ponds; and ducks may be reared in immense quantities, getting almost their entire sustenance from the snails on the water. Peter Henderson speaks of cocoanut fiber being a valuable material for mulch, and for incorporating with certain soils in raising crops. I am of the opinion that this mossy substance floating on the ponds would be still more valuable. In Castalia there was not only wagonloads but carloads of it, which I presume the people would be glad to get rid of. If thrown upon the banks until dried out it certainly would be a splendid absorbent to be used in stables, making our ponds and streams look more tidy besides.

JACKSONVILLE.

This is a very pretty city of nearly 30,000 inhabitants, and is the largest in the State. At the present time there is a very general activity all over the place in putting in good substantial street pavements. The cedar-block pavements are being removed, and either vitrified brick or cement put in its place. The cement pavement is made of material found only about 25 miles away, and brought in by boats. It seems to be a sort of limy marble; and when mixed with sand it resembles hard putty, and pounds down into material that is something like hard wax. They claim that, when once packed and rolled, it will turn off rain; and I should think that, with some attention to keep it in shape, it might do this.

There are plenty of churches here; and, judging from the sermons we have heard, their ministers are educated and able, and fully up to the times. Their audiences are made up also of people of intelligence and culture. For once in my life I have attended church where the ventilation seemed proper, especially for such a climate. There were very large windows, which were opened so that the church seemed like a great airy veranda; and those who were tempted to stay away from the service because of the enticing air and sunshine out of doors had certainly no reason to call the church close or confining. Endeavor Societies and Sunday-schools also seem to be doing effective work. The city is very quiet and orderly on Sunday.

*Another thing, where does this 80° of heat come from, 1000 feet below the surface? Is it possible this high temperature and the elevation of the water are in some way connected? If the water were forced up by steam, however, would it be possible for the water-pressure to remain so perfectly even, year in and year out?

Places of business were generally closed except the fruit-stands and drugstores. Besides the churches for the white people, those for our colored friends seemed ample and well attended. I never before saw so many *motley dressed* colored boys and girls. These people as a rule seem busy and industrious all through the city.

All around the depot, and on the principal streets, Jacksonville is *indeed* a busy place. In fact, to accommodate business traffic an immense structure, a real viaduct, spans all the railroad tracks, and connects Riverside with the principal streets of the city, leaving the track-yards unobstructed for the railway traffic. On this viaduct one may see crowds of people on foot, with teams and street-cars passing to and fro almost every hour of the day. In our northern cities at the present time we see very little building going on; at least, there are few structures being put up of any considerable size. But here there are not only an immense number of fine dwellings, but a large union depot is under full headway in process of construction. The terrible frost, that has been such a severe setback to many of the great Florida industries, seems to have had little effect in stopping improvements here.

SOMETHING GOOD FROM CANADA.

We notice, by the *Practical Farmer* of Jan. 5, that T. B. Terry has been invited over to the Queen's domains. We make the following extract:

One of the pleasant features of the meeting was a banquet. At 6 P. M. we moved from the hall, where the work was done, to a great room where numerous tables were loaded down with good things to eat, besides being most beautifully decorated with flowers, etc. As I walked through this beautiful spread, at the head of the procession, with the wife of my esteemed friend, President Mills, on my arm, I thought that farmers were certainly most highly honored in Canada; and when it came to drinking (water) to the health of the Queen, I know that I did it as heartily as any one there. About 300 were seated at this feast, and eating and toasts, and speeches and merriment, made $3\frac{1}{4}$ hours pass away very quickly.

Allow me to say the above is tiptop; but here is something of more special interest to bee-keepers, for it concerns the president of the N. A. B. K. A.:

I feel particularly indebted to one of my best friends, Sec. Holtermann, for giving me a chance to see all these things with my own eyes and hear them with my own ears. Somehow we do not get a full idea from reports issued by the Society. They are too modest. T. B. TERRY.

HITCHING-POSTS IN THE MIDDLE OF TOWN.

Inasmuch as I have had my say recently in the matter, it may be best to give the following from the *Massillon Independent*:

MIGHT NOT WORK.

A little reform in the matter of hitching horses in the business center would be gratefully accepted by everybody. It could be accomplished without giving offense to anybody, by the exercise of tact on the part of—say, the police force. A personal request, for instance, to move on to some side street, would in time cause country visitors to accustom themselves to a change of habit, and the business streets would be made much freer for traffic.—*Massillon Independent*.

Replying to the above, the *Wadsworth's O. News* says:

That thing was tried in Belvidere, Ill.; and then the country visitors politely told the city dads that, if they were not allowed to hitch on the principal street, they would go elsewhere to trade.

[To which I wish to add, "Good for the 'country visitors.'" Let the "city dads" have the town all by themselves, after their own fashion, and see how they like it.—A. I. R.]



PINK BEAUTY. (KOSTELETZKYA).

One of the greatest floral novelties of the age. Perfectly hardy, and covered all summer and autumn with beautiful, tender, bright, rosy-pink flowers as large and almost as round as silver dollars. Blooms first year from seed; forms a dense shrubby plant 3 feet high that remains in perfection a lifetime. Grows readily from seed and succeeds everywhere. Seeds, 25c per packet. Plants, 25c each, or 3 for 50c by mail.

GIANT PERENNIAL SWEET PEA.

Flowers 2 inches across; a lovely shade of lilac-blue with feathery markings of deeper blue and a clear white eye. Forms a dense vine 6 to 8 feet high. Blossoms the whole of July and August. Surpasses the finest Clematis. Hardy, growing more beautiful from year to year. Seeds, 15c per packet. Plants, 25c each, three for 50c, by mail.

A Flower Garden for 25c.

To introduce our seeds into thousands of homes, and prove by results their superior quality, we mail ten full-sized packets of Flower Seeds for 25c. These packets contain hundreds of varieties, and with the simplest culture will produce a brilliant display of beautiful flowers all summer and autumn, and plenty for cutting for the house. Also a collection of ten full sized packets of Vegetable Seeds, all fine varieties, for 25c.

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To all who order any of the above the GUIDE is mailed FREE. To those who send TEN CENTS, and say where they saw this advt., we mail a full set of the lovely Variegated-leaved Tuberoses, 3 bulbs of Gladiolus, and the GUIDE.

250 acres of Nursery. 25,000 ft. Greenhouses.

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Pacific Coast

Bee-keepers.

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POSSON'S SEED STORE,
Portland, Oregon.

The New Craig Seedling Potato.

For full description of this Potato, see page 959 of this journal for Dec. 15, 1894. Prices: 1 lb by mail, postpaid, 25 cts.; ½ peck, by freight or express, \$1.00; 1 peck, \$1.75; ½ bushel, \$3.00; bushel, \$5.00; barrel of 11 pecks, \$12.50. The above prices will hold good as long as our stock lasts. All orders by mail will be filled as soon as received. Orders by express will be shipped at once unless ordered otherwise. All orders for potatoes by freight will be filled April 1, or soon after that time, unless directions are given to ship at an earlier date. In this latter case I do not assume responsibility for loss in freezing; but where it is desirable to ship earlier, and customers have had luck, I expect to help them out so far as I can consistently. In regard to my responsibility I would refer you to A. I. Root. In fact, where it is more convenient you can order potatoes of the A. I. Root Co., instead of sending your orders to me.

GEO. E. CRAIG, Zimmer, Franklin Co., O.

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My new 60-page catalog for '95 before ordering your hives, etc. Goods and prices are **ALL RIGHT.**

J. M. Jenkins, Wetumpka, Ala.

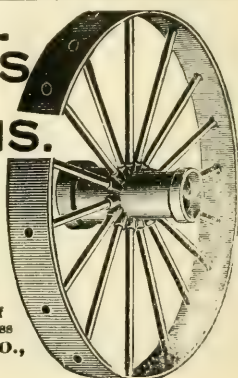
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Any size you want. 20 to 56 in high. Tires 1 to 8 in wide—hubs to fit any axle. Saves cost many times in a season to have set of low wheels to fit your wagon for hauling grain, fodder, manure, hogs, &c. No resetting of tires. Call's free Address **EMPIRE MFG. CO., Quincy, Ill.**





FLAT COVERS.

According to the new catalog, the option in hive-covers is between Higginville and ventilated gable. If any prefer the old style flat cover they may have them, if specified in the order. When no specification is made we send Higginville covers on single-wall hives, and telescope covers on chaff hives.

BUSINESS AT THIS DATE.

We are having so much work that we are running on full time, and have been for some time. We are also working the machinery in our wood-working department to its full capacity with a force of forty men and boys. We are turning out our extra polished sections at the rate of a million a month; and we have orders booked, and already shipped since Jan. 1, for over two million. This is somewhat of an indication of how they are appreciated.

CATALOG OF BEE-KEEPERS' SUPPLIES.

We expect that every reader of GLEANINGS will receive a copy of our new 1895 catalog in advance of this number of our journal. We may not have all mailed till a day or two after; but if you have failed to receive a catalog within a week after receiving this, write us for one if you care for it. It may be some time before our catalog of tools, household goods, and specialties, is out; but we will get it out as soon as our multitude of other cares will permit.

FLORIDA BRANCH.

Shipment of the second carload for Florida was deferred on account of the freeze, which materially changed the plans and prospects of many bee keepers there. We expect to ship a second car early this month. If in need of anything in our line, write Mr. A. F. Brown, San Mateo, as soon as possible after reading this item, so that, if he has not in stock what you want, it may come forward in the next carload to go.

SYRACUSE BRANCH.

The bee-keepers of Central and Eastern New York and adjacent territory have shown their appreciation of the convenience of being able to obtain our goods at our catalog prices at Syracuse, where Mr. F. A. Salisbury has had charge for the past three years. The sales have increased each year over the preceding. We shipped to Syracuse last week the first carload for this season, and more will follow as needed.

NORTHWESTERN BRANCH.

We expect soon to ship a carload of goods to our representative at St. Paul, H. G. Acklin, 1024 Miss. St. Any one in that vicinity wanting any thing special will do well to write above address, with order, that your wants may be supplied in this car. There is a good stock of hives on hand at St. Paul—Nos. 1, 1E, 2, 2E, 8-frame; No. 5, 8 and 10 frame, and No. 1E, 10-frame, packed as furnished last year, with flat cover and without nails and brood-frame starters. Mr. Acklin will repack these as per new catalog, if desired, or he will furnish them as they are at the old catalog price, with 5 per cent deducted. This reduction is offered as an inducement to furnish them as now packed, so as to save the trouble of repacking.

ANOTHER BRANCH HOUSE.

As we go to press we are loading a car with a general assortment of supplies destined for No. 10 Vine St., Philadelphia, where Wm. A. Selser will dispense the goods to the bee-keepers of the southeastern quarter of Pennsylvania and south half of New Jersey. The goods will be sold at our catalog prices, and Mr. Selser is supplied with catalogs as well. Mr. S. is an enthusiastic bee-keeper as well as a thorough business man, so that you can depend upon his giving you good service. He will also try to supply the Philadelphia market with honey; and if you have any to dispose of, especially clover honey, communicate with him at above address. He will, no doubt, be able to sell large quantities.

JOHN NEBEL & SON.

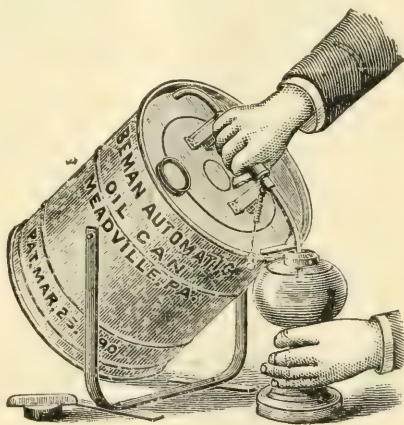
We have sold a carload of our supplies the past month to John Nebel & Son, of High Hill, Mo., and have printed for them a supply of catalogs. It was the pleasure of the writer to be entertained at the homes of these genial Missourians on his return from the International Convention at St. Joseph last fall. They have a very pleasant location at High Hill, and have a beautiful stock of bees. They have been prominent as queen-breeders for a number of years, and well deserve the success they have attained in that line.

COLUMBIA PRUNING-SHEARS.

The time for fruit-tree pruning is at hand, and already here in some sections. We have something new in the way of a shear to offer, which is superior in many ways to the old style. The joint between handles and blade is so made as to give the blade a shearing movement, ensuring easy cutting. The blade also cuts in the center of lower jaw, the edge bedding in a hard paper filling. The handles are of malleable iron, smoothly polished. It is a superior tool, which will be appreciated. Price 35c; by mail, 50c.

BEMAN AUTOMATIC OIL-CAN.

Who has not been annoyed by occasionally overflowing a lamp when filling from the ordinary oil-can? If your can is such that you draw the oil from a faucet, have you not been annoyed by the can springing a leak around the faucet? These and other difficulties are overcome by the can shown below.



This is a plain can, with no openings except in the top, and no projections to get bumped and start a leak. The pivots in the side of the three and five gallon sizes, on which they swing, consist of a steel rod running clear through the can, washed and soldered at each end, inside and out.

Manner of Using.—Simply hold the lamp in position on the filling-tube, inserting as far as the tube will go in the lamp, and tilt the can over until the oil runs into the lamp, which will fill to the proper height, and cease flowing automatically. Tilt the can back, raising the lamp at the same time to the first position; then remove the lamp, at the same time tilting the can backward until the oil in the tube runs back into the can, and there will be no drip whatever.

Principle of Construction.—The can is provided with an air-tight screw-cap, which should always be kept turned down tight. The filling tube, or spout, is double, one part connecting with the oil-space, and the other with the air-space of the air-tight can. The oil rising in the lamp to cover the end of the tube, shuts off the air, or vent, and thereby automatically stops the flow.

Three and five gallon sizes are made of galvanized iron, and have swing as shown. If more convenient, the stand can be hung on two hooks on the wall as a bracket, allowing the can to swing just the same. A one-gallon size, of tin, without swing, is also made. Price, 1 gallon, 35 cts.; 3 gallons, \$1.25; 5 gallons, \$1.50.

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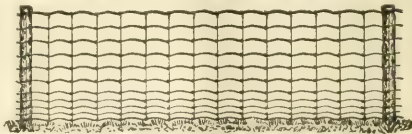
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Beginners should have a copy of the *Amateur Bee keeper*, a 70-page book by Prof. J. W. Rouse. Price 25 cents; if sent by mail, 28c. The little book and the *Progressive Bee keeper* (a live progressive 28-page monthly journal) one year, 65c. Address any first-class dealer, or

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HOW TO SIZE UP A FENCE AGENT.

When "pestered" beyond endurance, give 'em a "civil service exam." like this: Q. Are you a fence agent for revenue only? Were you ever a lightning rod peddler? (If yes, fire him, if 'no' go on). Are you a practical farmer? Know what constitutes a good farm fence? Have you thoroughly tested it yourself? Has any one used it nine years? Will they buy more? Is it **very elastic**? If he answers yes to the last six, give him an order, for he represents the

PAGE WOVEN FENCE CO., Adrian, Mich.

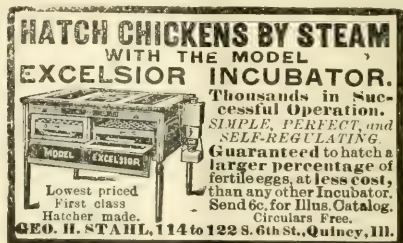
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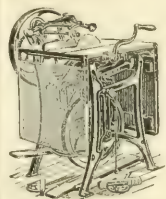


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ONE MAN WITH THE UNION COMBINATION SAW

Can do the work of four men using hand tools, in Kipping, Cutting off, Mitering, Rabbeting, Grooving, Gaining, Dadoing, Edging-up, Jointing Stuff, etc. Full Line of Foot and Hand Power Machinery. Sold on Trial Catalog Free.

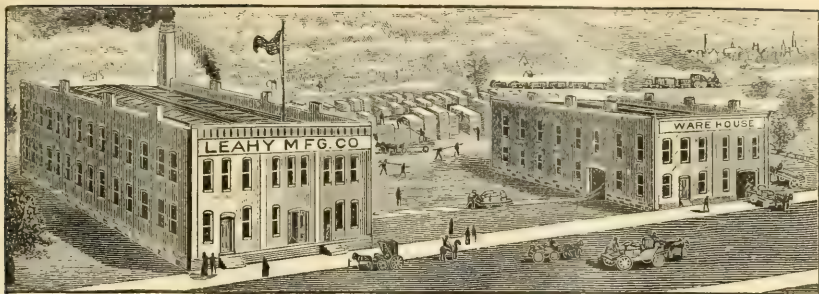
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 We are here to serve you, and will if you give us a chance. **GOOD SUPPLIES and LOW PRICES, Our Motto**
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Such as Dovetailed Hives, Sections, Comb Foundation, Extractors, and every thing else used by a bee-keeper. All late improved goods. Immense stock. Goods sold at wholesale and retail. Write for our

DISCOUNTS FOR EARLY ORDERS.

Alsike clover and Japanese buckwheat furnished at lowest market price.

Address **JOSEPH NYSEWANDER, Des Moines, Iowa.**

Florida Queens

3-7ei Address until April 15,

bred from my original strain of Maryland Italians, which has given such general satisfaction as honey-producers. Untested queens ready March 1st, \$1.00 each; 6 for \$5.00. Write for prices on large lots and special circular. Safe arrival guaranteed.

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W. ATLEE BURPEE & CO., Seed Growers, PHILADELPHIA.

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HONEY COLUMN

CITY MARKETS.

BOSTON.—Honey.—Our market continues without change. Comb honey, 13@14; extracted, 5@6. Pure beeswax is wanted, at good prices. No stock on hand, with some inquiry. E. E. BLAKE & Co.,
Feb. 8. Boston, Mass.

DETROIT.—Honey.—Honey is selling slowly. Best white comb continues to be quoted at 14@15; other grades, 11@13. Considerable in sight. Extracted, 6@7. Beeswax, 26@27; demand good.
M. H. HUNT,
Feb. 8. Bell Branch, Mich.

CLEVELAND.—Honey.—Honey is moving very slowly at about the same prices as quoted in last issue on account of the cold weather. No. 1 white comb, 1-lb. sections, is selling at 14@15; No. 2, 12@13. No. 1 water-white extracted, 6@8. Beeswax, 25@26.
WILLIAMS BROS.,
Feb. 7. 80 & 82 Broadway, Cleveland, O.

ALBANY.—Honey.—Consignments of comb honey are arriving in bad order, due to the extreme cold weather. Clover is selling at 12@13; buckwheat and mixed, 8@10. There has been a good demand for extracted buckwheat, and our large stock is nearly all sold; 5@6c is the ruling price. White will bring 6@7; but the demand is principally for dark.
CHAS. McCULLOCH & Co.,
Feb. 9. Albany, N. Y.

BUFFALO.—Honey.—No material change in honey. Trade is very quiet. Moderate amount of fancy moving off slowly, mostly at 13c. Choice goods, 11@12; commoner grades are exceedingly dull, and hard to move, at irregular prices. Would not advise shipment of honey here at present. Extracted very dull at 5@6.
BATTERSON & Co.,
Feb. 7. Buffalo, N. Y.

CINCINNATI.—Honey.—Demand is slow for all kinds of honey. Comb honey brings 14@16 in the jobbing way for best white. Extracted, 4@7; supply fair. There is a good demand for beeswax at 22@28 for good to choice yellow.
CHAS. F. MUTH & SON,
Feb. 7. Cincinnati, O.

CHICAGO.—Honey.—Owing to extremely cold weather there has been very little comb honey sent out, but our market continues to rule at 14@15 for the best grades of white; dark uncertain at 8@10; a good light amber sells at 12c. Very little trade in extracted honey; prices range from 5@7c, according to quality, color, and flavor, and style of package. Beeswax brings 27@28 for the ordinary run.
R. A. BURNETT & Co.,
Feb. 7. 163 So. Water St., Chicago, Ill.

PHILADELPHIA.—Honey.—Comb honey slow sale, and in poor demand at 11@13. Extracted in good demand and limited supply, at 5@6½. Pure beeswax very scarce, and in good demand at 30c.
WM. A. SELSER,
Feb. 11. 10 Vine St., Philadelphia, Pa.

Closing out balance of my fine extracted basswood honey at 7c f. o. b. Who is not supplied?
ELIAS FOX, Hillsboro, Wis.

ALFALFA HONEY. very white, thick, and rich. Two 60-lb. cans at 7c. Same, partly from cloome (tinted), 6c. Samples, 8c.
OLIVER FOSTER, Las Animas, Col.

We yet have extracted alfalfa at \$7.80 per box of 120 lbs.
AIKIN BROS., Loveland, Colo.

WANTED.—5000 lbs. clear yellow beeswax, at 27c cash; also several tons pure extracted honey that does not contain basswood or buckwheat; also several tons pure extracted white-clover honey, at 10c; send sample and quantity before shipping, to
WM. A. SELSER, 10 Vine St., Philadelphia, Pa.

FOR SALE.—Alfalfa comb honey, snow white, 12c; partly from Cloome, light amber, 11c.
D. S. JENKINS, Las Animas, Col.

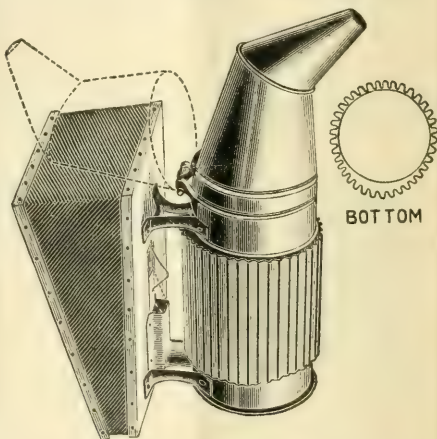
BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 187rdh and Prompt.

FAY'S Are a paying crop to grow for market.
PROLIFIC I have a large quantity of extra strong
RED well-rooted bushes for sale cheap.
CURRENTS **FRED. H. BURDETT,**
CLIFTON, NEW YORK.

Crane Smoker

1895 Pattern.

This excellent smoker was introduced some two years ago, since which time it has worked itself rapidly into popular favor.



Its Distinctive Feature is the Crane Valve, by which the full force of the bellows is secured without waste, and by which also smoke is prevented absolutely from going into the bellows.

The Legs are of Skeleton Malleable Iron, contracted at the feet so as to be out of the way of the fingers in handling, and are secured to the bellows by bolts instead of screws.

The Shield is of Light Corrugated Tin, and bags next to the bellows, thus giving ample protection from heat.

The Cone Top easily tilts back for replenishing the smoker, and is secured by a malleable-iron hinge, the working parts of which are milled so as to insure accurate adjustment to the stove or cup.

As to Fuel, it will burn any thing, including Soft Coal, Stovewood, Planer-shavings; and it makes no difference how much the latter may be crammed down in the cup, there will be the same strong blast as before.

Price, 3½-inch barrel, \$1.85, postpaid; or \$1.50 by fgt. or exp.

The A. I. Root Company,
Medina, Ohio.

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CONVENTION NOTICES.

The Utah Bee-keepers' Association will hold its semi-annual meeting on Thursday, April 4, at 10 A.M., in the Fish Commissioners' rooms, in the new city and county building, Salt Lake City.
GEO. E. DUDLEY, Sec., Provo, Utah.

The next annual meeting of the Central California Bee-keepers' Association will take place in Selma, Cal., on Wed., March 6, 1895.
J. F. FLORY, Sec., Lemoore, Cal.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must say you want your ad't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

YOUNG MAN with some experience in bee-keeping would like position with a practical apiarist where he can thoroughly learn the business. An Eastern State preferred. Good references.
F. C. JONES, JR., 99 So. 10th St., Newark, N. J.

WANTED.—To exchange a 10-inch Root foundation-mill, good as new, for hives in flat, or sections 4 $\frac{1}{2}$ x 5 $\frac{1}{2}$ x 7 to foot.
A. W. GARDNER, Centreville, Mich.

WANTED.—Supplies, honey, or offers, for improved Monitor incubator and brooder in perfect condition.
S. HOWARTH, Florissant, Col.

WANTED.—Position in apiary; experience, good reference, single.
E. H. FUHRMAN, Pleasant Home, O.

WANTED.—To exchange supplies and other goods for honey.
O. H. HYATT, Shenandoah, Iowa, 20tf

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—For spring planting, apple, quince, currants, gooseberry, strawberry, in exchange for golden queens, in June.
J. F. MICHAEL, Greenville, O.

WANTED.—To exchange bee-supplies for either Gem or Cigar-box planer.
E. J. SHAY, Independence, W. Va.

FOR OFFERS.—One No. 2 Automatic gauge lathe, and 1 improved gauge lathe (for handle-making). Let me know a good location for a custom sawmill, some one.
W. S. AMMON, Reading, Pa.

WANTED.—A quantity of drawn combs.
I. J. STRINGHAM, 105 Park Place, N. Y.

WANTED.—To exchange telegraph stock for bees or nursery stock in spring.
W. G. CHAMBERLAIN, Pittsfield, Me.

WANTED.—To exchange alfalfa seed and span mare mules, for nuclei and queens and basswood trees.
eol

BERT. W. HOPPER, Garden City, Kan.

WANTED.—To exchange one double stereopticon outfit, consisting of 2 oak-finished lanterns to burn with a lamp or lime light, with 1 pair of Darglet lens, with dissolving keys and saturator, with 92 plain and colored views suitable for exhibitions and advertising, valued at \$125.00, for hand-saw, standard make, or any kind of machinery that I could use.
W. H. WORLEY, Keokuk, Iowa.

WANTED. By an apiarist, 10 years' experience, a position with some man making a specialty of bee-keeping or supply work.
J. B. HENDERSON, Roney's Point, W. Va. Box 96.

WANTED.—To exchange a Barnes combined foot-power saw, for L. brood-frames of comb, and nucleus hives, or offers.
J. E. HENDERSON, Elm Grove, W. Va. Box 7.

WANTED.—To exchange Merritt typewriter, double cinch saddle, runabout sleigh with shafts, Demaz lathe and scroll saw, for bicycle, or offers. Describe wheel.
S. C. SNOW, Blakesburg, Iowa.

WANTED.—To exchange the best paper-shell pecans known, for onion-sets, asparagus roots, or moss such as nurserymen use for packing trees.
E. E. RISTEN, San Saba, Texas.

WANTED.—To correspond with bee-keepers in Alabama, Georgia, and Florida, in regard to the honey crops; also the price of land.
Address JOHN BURR, Braceville, Ill.

500 Barrels Sweet-Potato Seed.

Yellow Jersey, best variety, \$3.00 per barrel.
Red Spanish, Red Bermuda, and Jersey Queen, \$4.00 per barrel; 5% discount on 5-barrel lots.
Our stock is fine. Order now and secure a supply at reasonable prices.
L. H. MAHAN,
Box 143, Terre Haute, Ind.

Jas. M. Smith, Perkiomenville, Pa., breeder of 16 leading varieties of **Poultry.** Eggs, \$1.00 per 15. Catalog free.

FOR SALE.—40 acres of choice, healthy pine-land, partly cleared, with house and barn, near P. O., $\frac{1}{2}$ mile from Gulf; fine bee-range, for only \$700! Reason, having two places.
CHAS. NORMAN, St. Petersburg, Fla.

Dovetailed Hives.

Sections, Extractors, Smokers, and everything a Bee-keepers wants. **Honest Goods at Close Honest Prices.** 60-page catalogue free.

J. M. JENKINS, Wetumpka, Ala.



Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to

THE A. I. ROOT CO.

eioft

Please mention this paper

Over \$5.00

REVIEW endeavors to give the CREAM of all these journals, and it costs only \$1.00. If you can't afford to take all of the journals, yet wish to be well informed in apicultural matters, try the REVIEW.

W. Z. HUTCHINSON, Flint, Mich.

LISTEN HERE! 160-Page Bee-Book FREE

To every New Subscriber sending \$1.00 for the **Weekly American Bee Journal** for a year. (The book is "Bees and Honey" by Thos. G. Newman). Besides articles from the best bee-keepers, the Bee Journal now has 6 **Department Editors**—Mrs. Jennie Atchley in "The Sunny Southland;" "Canadian Bee-ism" by "Bee-Master;" "Questions and Answers" by Dr. C. C. Miller; "Notes and Comments" by ex-Pres. E. T. Abbott; "Doctor's Hints" on good health, by Dr. Petro; and "Among the Bee-Papers" by "Gleaner," who gleanes the best from all the bee-papers each week. Space forbids telling more. Better send for **Free Sample Copy**, or \$1.00 as per above offer.

Address,

GEORGE W. YORK & CO., 56 FIFTH AVE., CHICAGO, ILL.

E. KRETCHMER, RED OAK, IOWA,

* * *

SENDS FREE HIS CATALOG OF 72 ILLUSTRATED PAGES; DESCRIBES EVERYTHING USED IN THE APIARY; BEST GOODS AT LOWEST PRICES. CAPACITY ONE CARLOAD A DAY. WRITE AT ONCE FOR HIS CATALOG.

4-8

I told you so.

Mrs. Atchley: The one-frame nucleus I got of you last spring gave me 120 well-filled one-pound sections. J. A. SMITH, Heber, Utah, Oct. 9, 1894.

Now, haven't I told you that it will pay to send bees north in the spring?

One-frame nucleus, \$1.00; 10 or more, 90c each. Bees by pound, same price. Untested queens to go with them, 75c each.

Untested queens by mail, \$1.00 each; \$5.00 for 6; \$9.00 per dozen, till June; after, 75c each; \$4.25 for 6, or \$8.00 per dozen. I breed the leather-colored Italians, 5 bands, and Carniolans, in separate yards, at safe distance.

Tested, 3 bands, \$1.50 each; 5 bands or Carniolans, \$2.50 each.

Fine breeders of either race, or imported queens, \$5.00 each. Full colonies with untested queens, \$6.00.

Ask for discounts to dealers, and by quantities.

The only steam bee-hive factory in south Texas. Root's goods, Dadant's foundation, and Bingham smokers.

Safe arrival on every thing guaranteed. Send for FREE catalog that tells all about raising queens.

JENNIE ATCHLEY, Beeville, Bee Co., Texas.

Woodcliff Business Queens.

To please all, am breeding both Leather-colored and Golden 5-banded Italians. Have five apiaries, 3 to 5 miles apart, running 350 nuclei. Your orders filled promptly. Can furnish queens from March 1st to Nov. 10. The Leather-colored 3-banded Breeder, imported from Italy, Oct., '94. The Golden 5-banded Breeder, selected from 1000 queens, some producing 400 lbs. of honey to colony. State what you want, and send orders now for early delivery. Guaranteed queens, 75c; special low price in quantities. Send for descriptive catalog.

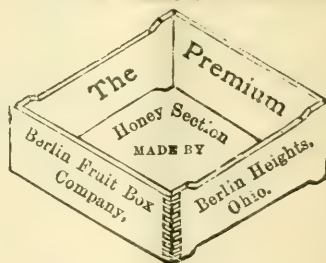
Wm. A. Selser,
Wyncote, Pa.

World's Fair Medal

Awarded my *Foundation*. Send for *free samples*. Dealers, write for wholesale prices. Root's new *Polished Sections* and other goods at his prices. *Free Illustrated Price List* of every thing needed in the apiary.

Beil Branch, Mich.

M. H. Hunt,



WE have a large stock of SECTIONS now ready, both No. 1 and No. 2. Write for special prices on winter orders in large or small lots, including all other Supplies. Also Berry Crates and Baskets made up or in flat.

Address

BERLIN FRUIT BOX CO.,
BERLIN HEIGHTS, O.

Are you Looking For the BEST

In bee-hives, sections, cases, etc.? If so, drop us a postal and we shall be pleased to send you a copy of our 1895 catalog and price list.

G. B. LEWIS CO.,
Watertown, Wis.

420 Lbs. Average

Is what my bees gave that I moved to the man-grove; those at home, 300 lbs. each; 5-banded bees, too. Queens, bred for business from this stock, will be sent in 1895 for \$1.00 each until May; per doz., \$8.00. Circular free.

J. B. CASE, Port Orange, Fla.



Vol. XXIII.

FEB. 15, 1895.

No. 4.

STRAY STRAWS

FROM DR. C. C. MILLER.

23° BELOW ZERO, Feb. 5—the lowest point up to that date.

THE BEGINNING of the series of articles on extracted honey, by Chas. Dadant, in *A. B. J.*, is something in the line of an historical treat.

THE BRITISH BEE JOURNAL thinks it is not an extravagant estimate to suppose the British Isles could produce annually 5250 lbs. of honey.

AN APIARY of 34 colonies on top of a four-story building in Philadelphia is reported in *A. B. J.* Averaged 50 lbs. per colony in 1892 and 1893.

"DOES IT PAY for the trouble to pack bees in the spring after taking out of the cellar?" is a query in *A. B. J.* Sixteen say no, five say yes, and a few give mixed answers.

THE A. I. ROOT Co. seems to be putting branch houses everywhere. Please give the street and number of the Marengo branch, so I can save freight from Medina.

AT ROCKFORD, ILL., convention, several cases of killing bees by spraying fruit-bloom were reported. One man sprayed his plum-trees while in bloom, and killed 30 colonies of bees.

I THOUGHT Doolittle was a Prohibitionist. But from the way he scatters around sawdust at intervals on the bottom of his bee-cellar, it's evident that he's quite familiar with the ways of the saloon!

"FOUL BROOD" and "compulsory powers" are words seen very frequently in connection in the *British Bee Journal* nowadays, which means they're making strong efforts to have foul-brood laws.

"I FIND NO DIFFICULTY," says J. Martin, in *B. B. J.*, "in retailing over half a ton of extracted honey every season at one shilling per 1-lb. bottle." Think of it! \$250.00 for 1000 lbs. of extracted honey, and the bottles to hold it!

W. STOKES, Balnastraid, Scotland, writes: "I am very successful in wintering. I use an

outer case, giving about two inches between it and the hive. This space I pack with mats made of rye straw, which gives warmth and ventilation."

G. K. HUBBARD reports in *A. B. J.* that in moving his bees by wagon 50 miles he laid "a small, tightly rolled roll of burlap across each end of the frames before nailing fast the covers." That kept the frames in place without other fastening.

IT'S DOUBTFUL if any one overlooks that ad. on p. 112. It won't hurt that chap to "look over" providing he moves cautiously; but a sudden dodge backward might be fatal, for the size of his lip is altogether out of proportion to the allowance of neck.

A NEW DEPARTURE in the way of programs is that of Wisconsin for their winter convention. Not a speaker or essayist is mentioned, but eight thoroughly practical topics are named for discussion, with no hours named. I bet you they'll have a good time.

HERR REEPEN, the *Centralblatt* epitomist, met a box-hive man with 450 lbs. of wax on his wagon who had harvested 6000 lbs. of honey, making him a net income of \$625. Herr Reepen agrees with many others that box hives should still hold a place in the heather regions.

I DON'T KNOW who wrote this beautiful verse, but it's what I wish for all the GLEANINGS family:

Not to be tuneless in old age,
Oh! surely blest his pilgrimage,
Who in his winter's snow
Still sings with note as sweet and clear
As in the morning of the year
When the first violets blow.

WHERE ARE WE AT? GLEANINGS, page 104, talks of voting for men, "irrespective of party." What will become of our country if it comes to that pass that a man isn't ready to sacrifice any thing and every thing for "the good of the party"? Allee samee, I indorse what is said about our Eugene, and add that he's no office Secor.

HERE'S HOW Jas. Poindexter treats colonies that have swarmed, the same having clipped

queens: "The queen is caged and placed under the alighting-board, when the swarm soon returns, and at the end of seven days she is released in the hive. Usually this stops any further swarming during the season by colonies thus treated."—A. B. J.

THE VERY SAME. *First Small Boy.*—We had a little baby come from heaven to our house last night.

Second Small Boy.—Huh! that's nothin'; we had one went to heaven from our house last night.

First Small Boy.—Say, Pete, I'll bet it's the same kid.

AN AMERICAN MIXTURE that's sure cure for foul brood is mentioned in *B. B. J.*, and that skeptical journal expresses doubts about it, and says something about "wooden nutmegs." Now look here, Mr. J. Bull; we own up to the wooden nutmegs, but we don't want the humbugs of all creation saddled on us; and when one is gotten up on British soil, please don't put our label on it.

WHAT A BIT of spite can be shown by emphasis on some little word! When Mary marries John, Sarah (who has failed to catch him) says, "I *hope* Mary will be happy with him," and the special emphasis on that word "hope" predicts dire calamity for Mary. And now "ye editor" says, p. 104, "I *hope* the doctor's past record will enable him to live down such a report." Why couldn't he hush it up, as I do his failings?

THAT'S A NICE SCHEME of A. I. Root, to have a gain of a year by cutting crimson clover in time to plant corn on the ground; but, pray, where are the poor bees to have a chance then? Per contra, C. E. Thorne reports from Ohio Experiment Station in *Stockman*: "We have not yet succeeded in getting a satisfactory stand of this clover at the Experiment Station, though several attempts have been made, nor have we heard of its being successfully grown in this latitude.

GENERAL CORRESPONDENCE

HIVES, LARGE VS. SMALL.

SMALL HIVES MORE PROFITABLE. AND WHY;
A CAREFUL REVIEW OF THE WHOLE
MATTER.

By H. R. Boardman.

I have been discussing the matter in my own mind for some time as to whether any thing more could be profitably said upon this already thoroughly canvassed subject. I am quite sure, when the arguments are all in, could the vote be taken, no change would be noted in the use of hives.

It could not be possible that all of the bee-keepers in this great diversified land, from the cold North to the sunny South, could agree upon the same kind of hive, either in size or style.

Methods must be as various as the climate. This question of hives, then, is largely a matter of locality. I can speak for my own locality only, as to what hives or methods suit me best. I would not presume to discuss with the bee-keeper of the South or West as to what is best for his locality.

Much depends, too, upon what is sought to be accomplished—whether the apiarist is working for comb or extracted honey, or both together; whether he wants increase, or wants to prevent increase; whether he wants to se-



H. R. BOARDMAN.

cure all possible of the honey gathered, and supply its place by feeding, or depend entirely upon natural sources. It seems to me that, for the production of extracted honey, the tiering-up feature would be indispensable, whether the hive used were large or small; and it also appears to me, that a small hive is better adapted to this purpose than a large one. But I am a specialist in comb honey, and perhaps had better consider the question from that standpoint alone. In order that my prejudices as well as my preferences be more clearly understood I will describe my hive:

It is an eight-frame hive, taking a frame $12\frac{3}{4}$ x $12\frac{3}{4}$ in., inside measure. You will see that this enables me to use a wide frame for sections that holds 9 sections, 6 frames to the hive, or 54 sections in a hive. I have recently, within two

or three years, commenced using 9 frames in my eight-frame hive, in a space of 12 in., and the number so used is increasing each year. It gives some advantages that I will not describe here, only to say it gives very nice combs; so you may put me on record as favoring the eight-frame hive with 9 frames in it, and with the tiering-up feature. Let me say, first and last and all of the time, that, in an experience of 25 years, I have found my hive large enough for every time and place.

There are two principal points which I take into consideration in deciding the proper size for a hive: I want it large enough to hold sufficient winter stores, and also to furnish about the right capacity for brood for the average queen—average, I say, for I have never been able to have all of my colonies breed up uniformly. Some queens will outdo and go ahead of the rest, while others will fall behind. It is a prominent feature of my work in the beeyard during the early part of the season, when the bees are building up rapidly, to equalize the strong and weak colonies: and until I have all of uniform strength in the yard, and all built up to the full capacity of the hive, I think I have no need of more room: and with all in this condition I feel that I am well prepared for the beginning of the honey-harvest. I do, however, build up extra strong colonies sometimes by tiering up, which I will describe hereafter.

For winter stores I would consider it poor economy to have a hive larger than required, when well filled, to carry the bees through, and have the honey all cleaned out at the beginning of the honey-harvest. I should rather feed a little to bridge over than to furnish hive room, and tug in and out of winter quarters a lot of old stores that are worse than useless in the hive.

In the early days of my bee-keeping experience I used to buy bees in old box hives, and transfer them to movable-frame hives. These hives were of all shapes and sizes, and my work upon them gave me an excellent opportunity of observation, and I availed myself of this opportunity. Proper size of hives was one of the things I had in mind, and I satisfied myself that a brood-chamber of about 2000 cubic inches was near right; and the experience of many years since has confirmed that decision. In many of the largest of the box hives that I transferred, I found old stores that had been carried over from year to year until it was thick and waxy. I could not see how the colony could be benefited by this surplus of stores; and unless a knowledge of the reserve gave them a sense of security, I decided that such hives were too large. When hives were so small that brood-rearing had to be economized, I decided that these were too small.

LARGE SWARMS FROM BIG HIVES.

There has been a great deal said from time to

time about large hives giving large swarms—big booming swarms—and much heavy argument is brought forward to show the profit of these large swarms, and consequently the advantage of large hives. Now, isn't it a fact that the size of the swarm depends almost entirely upon the queen. Would any queen produce any larger swarm in a large hive than a small one, so long as she was not restricted in laying and the bees were furnished room? I think it is the laying capacity of the queen that regulates the size of swarms almost entirely.

Now about the economy of large swarms. How large would it be economy to have swarms? Of course, there is a limit beyond which it would not pay to go. A large swarm costs just as much per pound to raise as a small one; and who can tell what is a big booming swarm—how many pounds of bees? So far as I can remember, no one has thought to tell us just how many pounds of bees there are in a big booming swarm that issues from a big hive.

If we had a big pile of bees, as we sometimes do in the swarming season, when several swarms go together, how many would it be profitable to put together in a hive in dividing them up? I have sometimes hived these big abnormal colonies all in one hive, and given them room, and watched them with expectation of wonderful results. To be sure, they work very rapidly at first, and do more than an ordinary colony; but they never come up to my expectation. They soon become normal in size, and never make a record that will compare with the same amount of bees in two colonies.

During the swarming season last year my bees were in what I called very fair strength. In order to know just what my swarms were, I set them on the scales and weighed them before shaking them out of the basket. I found them to weigh 7 to $7\frac{1}{2}$ lbs., from single eight-frame hives. I could never see much gained by having swarms much larger than this.

BUILDING UP COLONIES BY TIERING UP.

I find no difficulty in getting brood reared in two hives by tiering up. In fact, I had thought that more brood could be secured by this method than any other I had ever tried. It involves some extra labor, and requires plenty of stores, unless honey is coming in. When a colony becomes strong, and needs more room, if a hive of empty combs be placed on top or over it, the bees will soon occupy it, and the queen will not be long in following. The empty combs, with a strong force of workers, make the conditions favorable for the queen to do her best, and she will not be long in filling the combs with brood. I do not expect the queen to continue laying in both hives at the same time. I do expect, and am not often disappointed, when the queen goes above, that she will continue work in the upper hive until it is full of brood; and unless honey is coming in, the bees will remove a considerable portion of the honey above also, thus leav-

ing the lower set of combs empty, or nearly so, as fast as the brood hatches. My hive being deep, no doubt gives different results from a shallow one. Bees are inclined to occupy the upper hive when tiered up. This I call forcing the queen. I can, if I wish to continue brood-rearing longer in both hives, set the bottom hive on top, and it is in the most favorable condition to tempt the queen above again. But it is not economy to push brood-rearing far into the honey season.

The tiering feature I find valuable in uniting colonies. I just place one colony over the other, with a honey-cloth or oil-cloth between, with a corner turned so that a small passageway enables them to get acquainted, and, after a few days, remove the cloth, place the hive to be occupied on top, with the queen.

In the same way I unite colonies when they are set out of winter quarters; but no cloth is necessary between the hives, nor is it necessary to kill one of the queens. Being of the same scent, they unite without confusion; and often both queens continue work for some time. There has been much of the best thought of our best apiarists expended in devising methods by which brood-rearing could be judiciously encouraged early in the season, when the colonies are light, and are struggling against vicissitudes of weather, with a large amount of brood to care for. Contract the brood-nest by use of division-boards and dummies, the use of cushions, and packing and care resorted to for the purpose of protecting the colony and economizing the heat. But these are all expensive, and involve much labor and continual fussing, and I think they are only arguments in favor of smaller as well as more properly constructed hives.

I have not called attention to the advantage of a small hive over a large one, in the lifting, carrying in and out of winter quarters, etc. The ground has all been gone over, but this I consider an important item not to be overlooked.

After all, the question is not whether A can get better results with a large hive than with a small one, but whether A can get better results with a large hive than B can with a small one under the same conditions.

East Townsend, Ohio.

[For a long time I have been more and more convinced, from various talks that I have had with Mr. Boardman, that he is one of the keenest, brightest, and most intelligent bee-keepers we have; and if there is a closer observer of Nature and her laws I do not know him. I have been trying to get him to write; but it was not until now that I have prevailed upon him to give us a series of articles, and the one above is the first installment. The subject he has taken up and handled so well is one that I assigned to him, as I believed him to be as competent as any one to review the whole situation, now that it is about time to draw the hive discussion, both large and small, to an end for the present. Mr. Boardman's articles will probably be somewhat of the nature of a review

of the literature that has appeared in the past in GLEANINGS.

I had expected in the present article that he would be somewhat on the "other side of the fence" in this hive discussion; but although he uses a different size of frame, it is somewhat encouraging to see that, with Doolittle and a host of others, and over a different route, he has settled upon 2000 cubic inches as the correct size of brood-nest. Mr. Boardman says he finds no difficulty in getting brood reared in two hives by tiering up. This is the position that some of us, in opposition to that practical bee-keeper, C. A. Hatch, have held, and I am glad to see one more good authority to sustain us in this.—Ed.]

A very interesting and valuable article quite in line with Boardman's views will be found in this issue, by G. M. Doolittle, on page 137.

BEE-KEEPING AS A SPECIALTY, NOT A SUCCESS.

FRUIT-GROWING AND BEE-KEEPING A GOOD COMBINATION IN CALIFORNIA.

By Wm. G. Hewes.

Essays advising that bee-keeping as a business be made a specialty by the persons engaged therein have been written from time to time. The essayists are often eloquent in their advice, but never, I believe, practice what they preach. One of the best of these articles was written by a gentleman in Michigan whom Ernest Root, in his recent bicycle-tour, discovered to have a very fine orchard. The "G. in M." has, no doubt, perceived, as has the writer, that the growing of fruit fits in more happily with the production of honey than does any other occupation.

The bees in this part of California require constant attention during the months of April, May, and June. During the remainder of the year, a few days' attention each month is all that is needed. Now, during the months of April, May, and June, when the bees need constant attention, the requirements of an orchard are only cultivation, and this simple work can safely be entrusted to any ordinary farm help. The specialist bee-keeper, by the first of July, is beginning to wonder how he is going to "kill time" for the next nine months (and if it be a dry season following, he will have to kill time for the next twenty-one months); but the fruit-growing bee-keeper quits his extracting to attend to the drying of his apricots; and from apricots he goes to peaches, to prunes, to pears, to grapes, to figs, to apples, almonds, olives, or oranges, as the soil or climatic conditions of his locality make most profitable. By a proper selection of varieties the fruit-growing bee-keeper can harvest fruit from the end of his honey harvest until the beginning of the winter rains, at which time he has leisure to plow his orchards and paint his hives, thus occupying the whole year in a way conducive both to his happiness and his profit.

Numerous have been the devices of bee-keep-

ers to "kill time" during the eighteen months which have elapsed since we last had honey to extract. Some have got a "job" on fruit-ranches, others roam the hills with guns, potting quail and rabbits for market; and others again have retired to the mountain fastnesses with pick and shovel, to delve in the gravel of the creek-beds for gold dust; but their realizations are generally smaller than their anticipations. Only once have I heard where, in this seeking after gold, the realizations equaled the anticipation. But this bee-keeper did not dig his gold, for he was a bold bad bandit and wrecked a train. The sacks which he carried away are said to have contained \$20,000. In course of time he was captured, and now he will never "herd" bees again, for both himself and his partner (a nice young man from the Salvation Army) are living in strict retirement.

I wish here to place myself on record as saying that the making of bee-keeping in California a specialty is the acme of asininity. Many bee-keepers owning plenty of land do not even grow fruit enough for home consumption, believing it can not be grown excepting on those lands which can be irrigated. If they will plow deep, and then with harrows and clod-crusher pulverize the soil to the fineness of meal, and by constant cultivation keep it so, they can grow any thing. I care not how deep down it is to water. I have planted grape-cuttings, and gathered a bunch of grapes from them the same season. From apricots and peaches I have gathered fruit eighteen months after planting the tree; and almonds, pears, and prunes will give fruit in from three to four years after planting.

Newhall, Cal., Jan. 20.

[If I understand you correctly you are not a firm believer in bee-keeping as a specialty; and you point to the gentleman in Michigan, who has been an advocate of this doctrine, and say in effect he is not a practitioner of what he preaches. Mr. Taylor—and I presume this is the chap to whom you refer—makes a success in both lines, and very possibly he would of bee-keeping alone in good seasons; and, moreover, I understand he is a good lawyer; and that being the case he may and probably does get some revenue out of that profession. But during the past few poor honey years in Michigan, when many of its bee-keepers were glad to average even 10 lbs. per colony, Mr. Taylor would not have found bee-keeping a good bread-and-butter specialty. One of the hardest blows to the idea of bees as the sole bread-winner has been the series of poor years. During the good old-fashioned years, and Mr. T. probably had reference to these, such as we *used* to have, when bees every year brought to their owner some returns, the specialty business was a success. But now I believe I can almost count on the fingers of my hands the number of men who derive their living largely from bees; and if I except from that number those who have absolutely no other source of revenue there is scarcely one. But take it in other branches of agriculture, those who make a specialty of any one line are very few. Even our friend T. B. Terry, who has been a strong advocate of specialty on the farm, and one who used to grow

potatoes exclusively, and buy his other products, I believe now makes quite a business of growing strawberries, and lecturing throughout the State.

Well, then, if we accept the idea that specialty in bee-keeping to-day is not common, what other lines of business combine with it nicely? The one already mentioned—fruit-growing—is one of the best. Poultry-raising is also connected with it; but as a general thing you will find that the great majority of our bee-keepers are practical farmers, and that their bees are only a side-issue.—Ed.]

OUR HONEY RESOURCES.

HOW TO INCREASE THEM; A VALUABLE ARTICLE REVIEWING THE ATTEMPTS THAT HAVE BEEN MADE IN THE PAST.

By C. H. Dibbern.

Ever since I commenced bee-keeping, some thirty years ago, it has been a constant study with me how to increase the yield of surplus honey. Many a time during my enthusiastic periods, when the flowers yielded abundantly, I have thought that, owing to some device I happened to be trying at the time, I had "struck it rich," and visions of future wealth and position in the bee-world would loom up in the dim distance, only to be dashed to earth when the poor years came again. Indeed, bee-keepers seem to be of such a hopeful disposition, that, during years of abundance, they quickly jump to the conclusion that the coming years will all "flow with milk and honey," and that the hard times, when the flowers are scarce, or will not "give down," are indeed past for ever. However much we may have indulged in such thoughts, the recent few years of poor yields, and failure, have dispelled the illusion.

My first efforts to overcome short yields was to "invent" a new hive that would enable the bees, by its peculiar shape and heat-economizing principles, to secure the honey whether the flowers yielded or not. This worked all right while the years remained propitious; but when poor honey seasons came again, I came to the reluctant conclusion that, after all, not so much depended on the hive as on some other things.

About this time comb foundation made its appearance, and I straightway made up my mind that this was the long-sought desideratum. Why! was it not perfectly plain that all we need to do was to give the bees frames and sections, filled with these waxen sheets, and, presto! combs of nice sealed honey. But this, too, the hope-destroying poor years soon laid low. It was soon understood that, though it was an excellent thing to secure nice straight comb when honey could be found, it was utterly useless when the flowers refused to yield.

About next it was the particular strain of bees that was to give us the great yields. The superior honey-gathering merits of Italians, Carniolans, Cyprian, *et al.*, were duly extolled. Some of our enterprising queen-breeders even

tried to improve on these well-known old-fashioned names by advertising "Golden Carniolans," "Punics," "Five-banded Italians," and "Red-clover" queens that "just rolled in the honey." Well, the "rolling" business struck most of us, who had met so many disappointments, very favorably, and many of us sent off our money-orders and received the coveted queens in due time. But again the poor seasons soon taught us that even the most industrious bees could not "make" honey.

Then it was thought that, by manipulation, the desired results might be secured. Then the non-swarmer craze, the doubling-up plan, and non-swarmer devices; making two swarms work in the same set of supers had its day; but, strange to say, not much is heard of them of late.

Now, I believe most bee-keepers who have been engaged in the pursuit for 15 or 20 years have had just about the experience here related, and I do not wish to be understood as running down these efforts to improve our calling. I fully believe that all these things have been of great advantage. The hive, foundation, the kinds of bees, the manipulation, are subjects that can not be overlooked by the person who may hope to be successful.

I think that most of us have learned that, really, there is no short cut to success in bee-keeping. The desire, however, to advance, and take advantage of every suggestion and improvement, if it really is an improvement, is a laudable one, and should be encouraged. It has long appeared to me that the most promising field to increase our surplus-honey yield was to increase our honey-yielding flora. It is, perhaps, well enough to hunt to "the ends of the earth" for better bees; but why not send practical bee-men to study the honey-plants of other countries, with a view to introducing them here? It must be that some of the plants that yield so abundantly in other countries would do equally well here. Our linden is rapidly disappearing; and the white clover, owing to our scorching summers and snowless winters, is almost a thing of the past. It is becoming quite evident that something must take their places, if we may expect honey-yields in the future.

Some fifteen years ago I commenced sowing honey-plants in waste places, about stone-quarries, along creeks and rivers, wherever a suitable place offered, and where no objection would be likely to be raised. I have tried about all the honey-plants that have attracted attention, including Simpson, Dr. Tinker's golden, Chapman's, Rocky Mountain, etc., and I now find some of these plants growing in the most unexpected places. The plant, however, that has given decidedly the best results, and one that is able to hold its own against all the world, is sweet clover. It is a "dandy," as Mr. Muth says, and, no matter what the season or

the weather, it can be depended on to furnish a fine quality of honey.

Some years ago I rented from three to five acres of land adjoining my apiary, and kept it in sweet clover for a number of years. While so small a field did not give a yield of surplus honey to 150 to 250 colonies of bees during poor seasons, yet it kept up brood-rearing, and often gave me some surplus from fall flowers that I should not have secured otherwise. Strange as it may seem, the sweet clover has now spread for several miles, growing wherever it can gain a foothold; and in a few years more it will, no doubt, be the main honey-plant in my locality. I am glad to see such men as M. M. Baldrige write about sowing 80 acres to this plant, and shall anxiously watch the result. I see no reason why Mr. B. could not make it a paying crop for seed alone; and 80 acres of sweet-clover bloom, in the immediate vicinity of an extensive apiary, is a factor not to be despised. I have often wondered why farmers did not make more use of sweet clover as a forage plant and for fertilizing. I know of several hog-lots, of from 10 to 20 acres, that have produced nothing but dog-fennel for the past ten or fifteen years. Why not plow up, say, half, plant to sweet clover, and keep the hogs off for the first year? The next spring, plow and seed the other half and turn the hogs in to live on the tender clover-shoots. If not overstocked, enough clover would bloom and seed the ground to keep it from running out. Incidentally the neighboring bee-keepers would be benefited. Who will try my plan?

Of course, it is always a good plan to do what we can to induce farmers to sow alsike clover, buckwheat, and other honey-producing plants. One trouble with this idea is, that usually, when clover, alfalfa, etc., begins to bloom, the farmer appears with his mower and cuts it down. But it often happens that, if you can convince the farmer that the seed of the alsike, alfalfa, etc., will pay well, he may be induced to let it stand till done blooming, and thus give the bee-keeper the full benefit of the bloom.

Milan, Ill.

[As Mr. D. says, there is no short cut to success in bee-keeping. But there are a great many conveniences or "little comforts," as some have called them. A good point is made in utilizing the waste weed-patches. Sweet clover is a sort of weed; but if nothing but weeds will grow in these places, put one there that will be worth something. Dr. Miller is a firm believer in this doctrine; yes, he practices what he preaches; but don't tell him that I said so.—ED.]

HONEY-PACKAGES FOR EXTRACTED HONEY.

WHY HONEY-BARRELS LEAK SOMETIMES; THE REMEDY; ANOTHER VALUABLE ARTICLE.

By E. France.

In GLEANINGS for 1894, page 633, the editor makes a plea for tin cans. I think cans are all

right for small lots. I would a great deal rather handle a large crop in barrels. I have tried tin cans, and do use some yet for small shipments. For large lots barrels are cheaper, ship for less freight, in less carload lots. I don't know how it would be in car lots. When extracting in our out-apiaries we can with less trouble put the honey in barrels, and load them easier, than we could cans. With a pair of skids three or four boys will roll into a wagon a few barrels very quickly, whereas cans would have to be lifted in two at a time—heavy work; and when the cans are used, and the honey gets candied, they are a miserable thing to get the honey out of. First the cans must be filled full to hold 60 lbs. Now, it must be melted to get the honey out; and unless you are especially fixed for the work it is no fool of a job. I have set a can in a wash-boiler; have set them in the water-reservoir back of the stove, and it takes a long time to melt, as the honey is in one solid chunk. The screw-cap must be taken off; then, ten chances to one, the honey will swell up and run out of the top before it is melted, making a loss and a muss; and a 60-lb. can is a pretty heavy thing to lift up high enough to put into a boiler on the stove. First-class oak, iron-bound barrels cost me, made here, \$1.50 each, holding 370 lbs., warranted not to leak. I have handled our honey in such barrels for several years, and they do not leak.

As for melting the honey in the barrels, I don't do it. I take the hoops all off at one end of the barrel, then the head will come out. Take out the head, drive on the hoops again. Now dig the honey out of the barrels, and melt it in a tin pail; set in a kettle of water over the fire, or melt it in whatever you please; but have your melting-dish set in water to prevent scorching the honey. I can pack honey in barrels, and sell it for half a cent a pound less than if packed in 60-lb. tin cans; and then the shipping freight is a good deal less.

But there is a growing demand for 60-lb. cans. I suppose that is for the reason that such kegs as molasses is packed in are not suitable for honey-packages. They are too frail, and leak. A good oak keg, made suitable to hold honey, costs too much. When I first began to extract honey I had very much trouble to get a good package. I went to the best cooper in town, and bought some kegs that held 140 lbs. of honey—oak, with iron hoops. Being a cooper myself, I thought they were all right. He brought them out of the cellar. I took them home and filled them—14 of them; also got one barrel that held 500 lbs. I had them in a room above ground. In a few days they began to leak, and made me a great deal of trouble. That year my home market took all the crop at retail, so I had all the kegs left over to fill again the next year. I made up my mind that honey kegs and barrels should be kept in a dry place; then, as fast as I get one empty, I

put it upstairs in the shop, first washing the keg out clean inside, and putting in the head. I let them stay there and dry out until I wanted them the next year. I got some new barrels made and put them up stairs also. Result—when I wanted them the next year they were dried out. I drove the hoops, and they were tight. I filled them with honey, and there was no leaking. We have never been troubled with leaky barrels since. We now have our barrels made in the winter. We put them in a dry warm place until wanted; and if they are well made they won't leak. It won't do to keep honey-barrels down cellar. Barrels will soon leak when taken from the cellar and filled with honey. Honey doesn't seem to keep barrels from drying out. Leaky barrels filled with water will soon swell and hold water; but not so with honey. It won't do to pick up any thing you may find down town, for honey-packages. They will be sure to leak, as they are kept in a cellar. I think the honey will pay for a good package, clean and tight.

After we had found out how to fix barrels so they would not leak, we found we could save a little money by buying barrels that would hold 530 lbs. in place of the ones we were using, that held 370. The small ones cost \$1.50, the large ones \$1.60, so we got 50 of the large ones. We found the large ones unhandy. They are too big. A 370-lb. barrel is about right, we think. For retail trade we use tin pails. One and two quart sizes take the best in Platteville. Platteville, Wis.

[Many of the difficulties between the bee-keeper and the buyer of honey is over leaky barrels. The one says that so much honey was lost, and the other doubts his statement, and so on the trouble goes. All of this may be avoided by reading carefully what Mr. France has to say above. The trouble in many of the cases is not so much with the commission merchant or buyer as with the producer, or, rather, his (the producer's) lack of knowledge. Although the Dadants the Muths and ourselves have repeatedly said that barrels should be kept in dry places, and that they should not be soaked with water before putting in honey to make them tight, yet almost every year there are a lot of bee-keepers who go on and do this same thing, and as a result reap the natural consequence—loss of honey, and a distrust of the buyer. I think it would pay every bee-keeper who ships his honey in barrels or kegs to paste this up in his honey-house, where he can read it once in a while.

The editorial referred to was by our business manager, who has had some of the troubles above mentioned, and his solution of the difficulty seemed to be in the use of tin cans. When I visited Mr. France last summer I saw stacks of barrels of honey that were perfectly tight, not even showing the least trace of leakage. These same barrels, as Mr. France explains, were bought some time ahead, and kept in a dry place, and allowed to shrink all they would; then after being carefully coopered up they were ready for the honey.

Regarding the square cans and barrels, it seems to be largely a question of locality. In California and certain parts of the West, on account of the dry climate, square cans are used as

a matter of necessity. In the New York markets, and in Albany, I found that barrels and kegs were preferred by all the commission men and buyers. Two square cans in a box, they claimed, were heavy and unwieldy; and then if they were dropped, a bad leak was the result. One commission man, I remember, told me he would not have a square can of honey in his place if he could help it; that there was no reason for kegs and barrels leaking if the producer only understood his business, and that, in his opinion, it would not take them very long to learn after they had shipped honey once or twice, and had about half of it lost by leakage.

I suppose much of the trouble from leaky barrels is owing to the fact that second-hand molasses-barrels, none too good in the first place, were used. The Frances, you see, buy new barrels and make sure that they get good ones at that.

This article will be seasonable, inasmuch as it is the proper time now to procure your barrels for next year. They should be put up in a dry room, where they can season thoroughly.—Ed.]

CALIFORNIA ECHOES.

By Rambler.

Great Scott! I have just learned that there are 191,988 bachelors in California.

It is a real pleasure to receive the first numbers of the bee-journals for the new year. All show a progressive spirit, which is a sure indication that the industry is marching on. Glory hallelujah!

Hum! pull the cobwebs outen your ears, and listen. The word bee-paradise is floating in the air. Mr. Blankton, of Beeville, Tex., in *A. B. J.*, says, "This is, no doubt, the bee-paradise of this continent."

Some time ago Dr. Miller wondered or speculated why the queen-bee has a curved sting. Did you ever see a queen-bee sting a rival in her cell? She clings around the cell; and the sting, following the curve of the body, strikes the rival in the thorax. Of course, the sting has to be curved to "get there."

That was real mean for Mr. Thilman to say that our beautiful white-sage honey tasted of alkali. Why, bless you, sir, our sages do not grow in the alkali lands. We have but little alkali lands here anyway; and where there is much alkali the ground is barren. No, sir; you will have to taste again; then taste of that basswood honey, and see how minty it tastes.

In *A. B. J.*, Bee-master says: "A narrow belt of the Dominion of Canada, extending from the Atlantic to the Pacific, has no superior as a honey field anywhere in the wide, wide world." Gallup says, "So California is not only the bee-keeper's but the old man's paradise"—enough paradise for two. Paradise is also found in Florida, Cuba, heavenly Topolobampo, and Australia. So paradise seems to depend upon how much the love of one's locality is diffused over the cerebrum. It is clearly a brain trouble. Dr. Peiro, what shall we do with these fellows?

I note that Dr. Miller is troubled about stopping cracks in boxes. Beeswax, if run into corners of boxes, is sure to scale and crack. Try paraffine. It is free from the habit of cracking, and sticks well. Quite a loose-jointed box can be made water-tight by fitting into it a piece of canton flannel; but before fastening it in, saturate it thoroughly with hot paraffine, then secure with small tacks, and your box is water-tight. That is the way I make cheap trays for photographic work.

There, now, those Canadians are trying to get ahead of me on that magic-lantern business. I had that very idea maturing and experimenting on slides, when they popped up with their lantern plans. Well, this is a big country, and I think there is room for several operators of the slide; and there is a splendid opportunity in this direction for the proper education of the public in relation to bee-keeping, methods of work in the apiary, the opening flowers, and a hundred interesting things. I wonder if we can not get up a bee photographic magic-lantern exchange club. What do you say, friends, in Canada?

I notice, Mr. Editor, that your proof-reader, or some one else, in seeking to correct my pronunciation of Spanish names, is making some mistakes that will, of course, fall upon my head. The Spanish as spoken here is not the pure Castilian. It is corrupted more or less; and when I give the pronunciation after a word I give it just as I have heard it spoken scores of times. For instance, in *Ramble* 123 I used the name *Jolon*, a town. It is pronounced *Holoné*, and your interpreter put it *Jo—*, which is wrong, as he of course knows, for all Spanish words having a *J* in them are pronounced as an *H*; as, San José (Hosay), or San Joaquin (Hoaquien), or, as it is popularly pronounced, here, Wauk-éen. Then in the same *Ramble* Gonsales is fixed over into *goan-saw-lais*. Now, that is near the *Castilian* pronunciation, but here it is cut short, and is pronounced as *gun*, or *gn-saw-lis*. I mention these words, and especially "*Jolon*," for California readers will notice the wrong rendering, and accuse me of being a tenderfoot.

[Regarding the Spanish words, it was a typographical error that we did not represent *Jolon* as if pronounced *Ho-lone*, as a Spanish *J* is a Yankee *H*; but Rambler makes three syllables of it, as if pronounced *Ho-lo-nay*. In this regard we fear he stands "*H'loné*." We believe that even those who speak Spanish with a brogue would regard the figured pronunciation of the other words as correct, from the standard of the Spanish Academy. The trouble was, if any, the pronunciation was *too* exact. We have always tried, and shall continue to do so, to give Rambler's exact meaning; and in the case in question we are glad we got it *too* good rather than *too* bad. So far we have followed Rambler very closely in his travels, by means of a map, lexicon, and Spanish books, and have tried to verify every word printed.—PROOF-READER.]

WEED SEEDS SOMETIMES FOUND IN CLOVER SEED.

AN IMPORTANT WORK BY THE NORTH CAROLINA EXPERIMENT STATION.

Bee-keepers have more or less to do with all the clovers; and as there has been in times past quite a little trouble in regard to various seeds, and some discussion as to what these seeds were, we have thought best to extract the following from Bulletin No. 108. of the North Carolina Experiment Station, which station has kindly loaned us the cuts given:

THE CLOVER FAMILY.

The clovers are the most frequently adulterated, and generally the foulest samples found in the markets. Crushed quartz rock, either plain or colored, to resemble true seed, has been frequently employed where dealers do not fear detection. Old, discolored, and worthless seeds are often dyed, and mixed

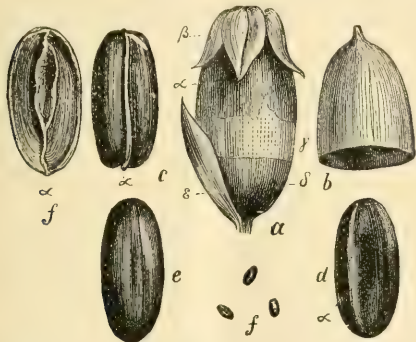


FIG. 18.—PLANTAIN.—a, fruit, with attached corolla; b, the 4 corolla-petals; c, twin seeds; d, the inner surface of seeds; e, back of seed; f, seed, natural size.

with fresh seed. These "doctored" seeds can be detected by pouring some of the seed upon a clean white cloth, slightly moistened, and rubbing the seeds thereon. The cloth will remove the artificial coloring, and show it. Quartz grains can be readily detected by examining the seeds with a magnifying-glass. "Uncleaned" samples often contain a fifth of their weight in weed-seeds, the most common of which are plantain (*Plantago lanceolata*, Fig. 18),



FIG. 19.—SHEEP SORREL.—a, seed in hull; b, a naked seed, enlarged size; c, natural size.

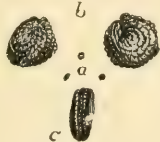


FIG. 20.—CHICKWEED.—a, natural size; b, magnified; c, same in profile.

sheep sorrel (*Rumex acetosella*, Fig. 19), chickweed (*Cerastium triviale*, Fig. 20), pigeon-grass (*Setaria glauca* and *S. viridis*, Figs. 21 and 22), ox-eye daisy, dog-fennel, and buttercup. Seeds of a parasitic plant commonly known as dodder, "devil's-gut,"



FIG. 21.—PIGEON-GRASS (GREEN).—a, back and front views, enlarged; c, even a trace of seeds, natural size.

of this foul parasite should be rejected, whatever be their price. A full account of this weed was given in Bulletin 70 of the North Carolina Experiment Station. Alsike-clover seed (Fig. 25) is largely imported from Europe, and is apt to contain dodder-

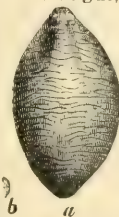


FIG. 22.—PIGEON-GRASS (YELLOW).—a, magnified to show marking; b, natural size.

seed (Fig. 24—on the ground), which, being of nearly the same size as the clover-seed, is very difficult to get rid of. Uncleaned samples are more or less infested with seeds of buttercup, plantain (Fig. 18), sheep sorrel (Fig. 19), and chickweed (Fig. 20).



FIG. 23.—FLAX DODDER.—a, natural size; b, magnified; c, double seeds.



FIG. 24.—CLOVER DODDER.—r, section of a seed; c, endosperm; v, vegetation point.



FIG. 25.—ALSIKE CLOVER.—a, natural size; b, side view showing rootlet; c, profile view.

Crimson-clover seed is generally much cleaner than other clovers, and the samples are not often adulterated. The most common impurities are plantain (Fig. 18), ox-eye daisy, and sheep sorrel (Fig. 19).

Japan clover is usually sold in the husk, and is not adulterated; neither does it contain as impurities other kinds of seed, for *Japan clover* permits no other plant to grow among it.



FIG. 26.—COMMON PIMPERNEL.—b, double fruit; c, d, single fruit, back and front view, enlarged.

Samples are, however, often very dirty with sticks, stones, and trash. In dry seasons the seeds do not fill well. Good seed should weigh 24 pounds to the bushel.



FIG. 27.—RAGWEED.—b, hulled seed, with pappus; a, natural size.

Lucerne seed is largely imported from Europe, and is apt to contain dodder (Figs. 23 and 24), plantain (Fig. 18), common pimpernel (*Pimpinella saxifraga*,

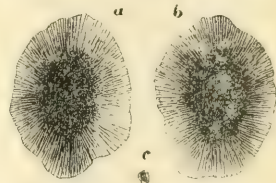


FIG. 28.—RANSTED-WEED.—a, b, front and profile views; c, natural size.

Fig. 26), and seeds of composite weeds. American-grown seed-samples are apt to contain seeds of hog-weed (*Amarantus spinosus*), dog-fennel, and pigeon-

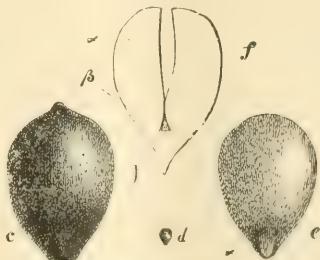


FIG. 29.—RAGWEED.—c, without pappus, and put open; d, natural size; e, naked seed; f, section of seed, showing cotyledons.

grass (Figs. 21 and 22). European lucerne-seed is generally better than American-grown seed. The best comes from Provence, in France.



FIG. 30.—CORN COCKLE.—a, natural size; b, magnified.



FIG. 31.—WHITE CLOVER.—a, natural size; b, side view, showing rootlet; c, profile.

Red-clover seed is not now imported from Europe. The most common adulterants are quartz grains, which can be detected by using a magnifying-glass. Uncleaned red-clover seed is probably the foulest seed on the market. The most common impurities found are plantain (Fig. 18), sheep sorrel (Fig. 19), pigeon-grass (Figs. 21, 22), ragweed (*Ambrosia artemisiifolia* (Figs. 27, 29), raised-weed (*Linaria vulgaris*, Fig. 28), corn cockle (*Agrostemma githago*, Fig. 30), dog-fennel, ox-eye daisy, and wild carrot. Dodder (Fig. 24) is also apt to be present in samples of red clover, though not so frequently as with lucerne. The least trace of dodder-seed should condemn the sample.

White-clover seed—shown in Fig. 31—is, to some extent, imported from Europe, and it is sometimes adulterated with old and dead seed, colored and doctored with sulphur, to resemble fresh seed. Quartz seed; b, d, different views, magnified.

White-clover seed—shown in Fig. 31—is, to some extent, imported from Europe, and it is sometimes adulterated with old and dead seed, colored and doctored with sulphur, to resemble fresh seed. Quartz seed; b, d, the naked seed; a and b, grains, either plain or colored, are used for the same purpose. The most common impurities in badly cleaned samples are plantain (Fig. 18), sheep sorrel (Fig. 19), and spurry (*Spergula arvensis*, Fig. 32). Dodder may be present in samples of white clover, but it does not affect this species as much as it does red clover, alsike clover, and lucerne.

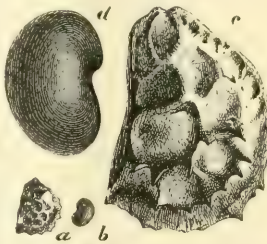


FIG. 32.—SPURRY.—a, natural size; b, c, d, different views, magnified.

FIG. 33.—SAINFOIN.—a, c, the hulled seed; b, d, the naked seed; a and b, natural size.

THE SEALED-COVER QUESTION REVIEWED.

WHY THEY WERE CONDEMNED.

By A. S. Martin.

Friend Root:—I would ask those who make such a handle of bees wintering in cracked hives and rent hollows of trees if they ever took the trouble to observe the situation of the cluster. Were the bees really exposed to the draft from those crevices? Pshaw! nonsense! they can not be induced to form their cluster in the midst of an upward draft, if they can possibly avoid it. In all these cases it seems certain they were able somehow to shun it. Those reports in GLEANINGS, seemingly so adverse to sealed covers, appear to me exceedingly defective and unsatisfactory. They almost, without exception, ignore bottom ventilation. How can such reports give the "black eye" to sealed covers, or "seal their fate"? The trouble seems to have been with the sealed or partially sealed bottoms. The interior of a hive with close walls and sealed cover is practically a dead-air

space, subject to no fluctuations but such as the bees themselves create, provided the hive is as it should be, sheltered from the wind. In such a hive, bees have perfect control of ventilation, as* Nature evidently designed they should have. They will ventilate perfectly such a space if they have free access to the external air. They do it in summer, and why not in winter? They are not then helpless hybernants, as some seem to suppose. They arouse at intervals and attend to their needs, and are never all asleep at the same time. You can hear them at all times.

Mr. Quinby's reversed hives had no upward ventilation. Mr. Taylor's results with lots 1 and 2 (see June 1st GLEANINGS, of 1893) prove nothing more than that such methods may be practiced with impunity in a temperature of 42°. In summer he can go still further—leave both tops and bottoms off, and his bees will not perish if he will only give them shade and shelter. But what shall I say of lot No. 3? The damp interior, the wet moldy combs, the dead bees, conjure up visions of the Black Hole, of Calcutta. Mr. Boardman and others use sealed covers and have no such results. Why? Because they provide *sufficient* bottom ventilation. Bees must have fresh air, and plenty of it; but how can you by upward ventilation adjust the supply to their needs? You can't do it, and needn't try—too much or too little. In either case your bees are injured, if not destroyed. The mere fact of their living till spring is no proof that they have not been injured. Discomfort, sleeplessness, the wear and tear of their efforts to keep warm, fit them admirably for the process of spring dwindling.

Bees do well under sealed covers in Virginia. I have kept them thus 45 years, and have never lost a colony in winter but by starvation or thieving. Perhaps Nature did not design them to live in more northerly climes, hence their propolizing instinct is there at fault. In order to do well they should there be endowed with a penchant for such abodes as disused chimneys and stovepipes, and, like bumble-bees, roof their nests with old rags, moss, and bits of stubble.

Dear brothers, I am not trying to ridicule any of you; but I can't help pointing a jeering finger at the long ears of this ridiculous thing called upward ventilation. If you will stick to upward ventilation, suppose you try the cracked-hive plan. Seal a cover over $\frac{3}{8}$ or $\frac{3}{4}$ of the frames, or of their length, and then cover this and the remaining space with your absorbents, cushions, etc. May be this will prove a happy compromise. I use heavy cotton cloth, thoroughly saturated with melted bees-

*When a medical student I was taught to follow the indications of Nature. I have ever found this to be a safe rule. There are those who scorn it. But Nature appears to me a something sparkling all over, and radiant through and through with intelligence.

wax, sealing it to the tops of the frames and upper edge of the hive with a hot iron. On this waxed cloth I place six or eight folded newspapers, and over all an inch board with a brick on top to keep it in place; entrance, $\frac{3}{4}$ x 16 inches: hives on summer stands, sheltered from westerly winds.

Roanoke, Va., Nov. 27.

[Dr. Martin advocated the sealed cover back in '84. He was quite disappointed that they should have been so hastily condemned last spring.—Ed.]

RAMBLE 126.

AT PRYAL'S AND THE STATE UNIVERSITY.

By Rambler.

The towns became more numerous, railroads ditto; telegraph and telephone poles with their burden of wires ditto; also vehicles on the road, all the way from a road-cart up to the many-teamed wagon, the elegant carriage with happy-looking smiling ladies; the equestrienne with bifurcated skirts, and some, more sensible, with skirts, and the appendages they cover, carried on a side-saddle, according to the old plan. All of the above and much more made us feel a little out of place, in our rough traveling-garb, for we were being drawn irresistibly by the throng to those great business-centers, San Francisco and Oakland.

It is always best to prepare for an emergency before we emerge into the emergency. We therefore camped early at the pretty little town of San Lorenzo, 12 miles from Oakland. We here razored our faces, shampooed our shoes, and made such changes in our wearing apparel as we thought would enable us to pass for a couple of well-to-do members of the rural community.

Our black shirts (not black from dirt, by any means, but dyed black early in their manufacture, and quite fashionable with people who travel in the dust) we exchanged for the white variety, with collars to match; and various other garments, which had been packed away for so many weeks, were donned; and in the morning, when we again started on our journey, it seemed to me that we had left two other fellows behind at San Lorenzo. In our better habiliments we drove direct into the center of the fine city of Oakland. We found Telegraph Avenue, and, following it out several miles, finally landed at North Temescal (which is really only a suburb of Oakland), and at the home of Wm. A. Pryal. Of course, you all know Mr. Pryal as a genial writer for the bee-journals. He is a bee-keeper and queen-breeder; and before going further I wish to introduce his visage to you through a half-tone; and, better yet, I wish to say right off, and say it loud—yes, I want to shout it—he's a bachelor! ha, ha, ha! Let's shake, Mr. Pryal—ha, ha! shake again; shake, Wilder. Well, aren't we

three just as happy as three big sunflowers? After our sort of ebullition, and jubilee of fraternal feeling we camped upon a cozy corner of the Pryal property. Upon one side of us was the murmuring waters of the Temescal Creek, over us the tall gum-trees, whose leaves also murmured in the evening breeze that came fresh from kissing the waters of the grand Pacific Ocean. Fruits, flowers, and vines were growing in profusion all around the Pryal homestead, and in such variety as would bewilder the eyes of the novice, and doubly bewilder the nose with the various flower-scented perfumes.



W. A. PRYAL.

Mr. Pryal resides under the paternal roof, and the apiary nestles snugly under the fruit-trees near the house. The senior Pryal came from the Emerald Isle, and made himself a home in the Golden State in the early days of its notoriety. Mr. Pryal, senior, is a horticulturist of note, and one of the first to engage in that business on this coast. On this fruit-ranch are found many rare fruits, shrubs, etc. He was the first to import several varieties of plums from Japan; and the other rare specimens in the horticultural line, in which he has been and is interested are too numerous to mention. Owing to the dull times and the great railroad

strike, fruits of all kinds were wasting on the ground. Nearly all of a fine cherry crop was lost. Pears, peaches, apricots, plums, were rotting in profusion.

Mr. Wilder and myself made a pretty good market for quite an amount of fruit; but the market could not stand the shock of such a variety, and soon became overstocked.

Wm. A. has been interested in bees several years, but has never owned as large apiaries as we see in Southern California. His present apiary numbers about 50 colonies. The yields of honey here are not so astonishing as we find further south. The resources are from a different flora, or, rather, a more mixed flora, and the honey is several shades darker than our white-sage honey. I was pleased to note,

been a dull one he started off with many customers. His location is excellent for shipping queens to the various islands of the Pacific and to Australia.

Mr. P. has two efficient helpers in his younger brothers; but I fear the male trio of bee-keepers in this family will soon give up the bee-business. Wm. A. is just now interested in furthering the interests of the New Water Co., of Oakland; Charley and the other brother are mechanical geniuses, and are going to make things hum with electricity. I greatly fear that the care of the apiary will devolve upon the several young ladies in the house. I have no doubt but they can rise equal to the occasion when the occasion arrives. Among other distinctions, Wm. A. and the other brothers



APIARY OF W. A. PRYAL, NORTH TEMESCAL, CAL.

among other honey-producing trees, the linden, or basswood, growing thriftily on the avenue. This is a fine shade-tree here, and I have seen it in a limited way in other cities on this coast. Its growth demonstrates that it will thrive in any moist locality, either from ocean humidity in the shape of fogs and rain, or in the irrigated districts. Although its habit is not so beautiful as the evergreen pepper-tree, its honey is so far superior that it would be a blessing to bee-keepers to see it replace the pepper-tree.

Although the honey produced here does not rank as the whitest, its flavor is such that Mr. Pryal finds a ready sale and good prices for all he can produce. The dovetailed hive with all its appurtenances is used, and is considered the best all-round hive for this locality.

Mr. P. has recently directed his attention to queen-rearing; and though the past season has

and sisters are native sons and daughters of California.

The next day after our arrival, Aug. 4, we followed the footsteps of our host and tramped over the hills to the State University. Berkeley is chiefly noted for having this California institution located within its limits. Prof. C. W. Woodworth had attended our State convention; and the University, or the department under his care, was making an honest effort to aid bee-keepers, and disseminate knowledge in relation to the honey-bee. We three felt it our duty to call, and also help in our feeble way. Although the University was enjoying a vacation we found Prof. W. at his post. In his laboratory in the Agricultural Building we were shown bees preserved in alcohol, in all stages of development, from the eggs to the mature bee. In the attic were stored the vari-

ous implements for the successful management of bees. Prof. W. had tried to work a colony of bees in this attic; but as they had to fly up some twelve feet to the cupola above for an exit, and would just as often fly still further up and dash their brains out against the skylight, their usefulness was much curtailed, and the plan abandoned. Prof. W. will next make a platform in the cupola, and conduct the entrance through the slats. In this way the bees will have a fair field all to themselves, and escape the dangers of the skylight.

The department in which Prof. W. labors is ready and willing to aid bee-keepers in the way of experiments or the naming of various honey-plants now unknown to bee-keepers. The bee-keepers of the State are alone to blame if the University does not seem to make much advancement. With a proper backing by the fraternity, great results might be expected from the State University.

Prof. W. kindly escorted and introduced us to the various features of this great University. The great oaks, among which the buildings are located, and the multitude of other trees and shrubs from every clime the sun shines upon, make this feature alone one of deep interest. The honey-bee can here revel in blossoms, the native home of which is in the tropics, thousands of miles away; remote islands also contribute their floral treasures. We felt as though several days might be spent here profitably instead of a paltry hour or so. The professor returned to his duties; and as the shades of night were falling, we roamed over the hills again to the Pryal home.

EXPERIMENTS IN FEEDING BACK.

By R. L. Taylor.

Ed. Gleanings:—At your suggestion, that I give my views of your comments in Jan. 15th No., page 64, upon the results of my experiments in feeding back, I will attempt to point out some of the things which you appear to have strangely overlooked in your criticisms, and which, it seems to me, have led you to arrive at faulty conclusions.

As to the market price of the kinds of honey under consideration, you say: "According to the Honey Column in this issue, extracted honey of good quality brings at wholesale 7 cts., and comb 12." Now turn to the Honey Column of that issue and you will find that, in the markets most accessible to us, viz., St. Louis, Chicago, Cleveland, Detroit, and Cincinnati, the best comb honey ranges in price from 14 to 16 cts., and white extracted from $5\frac{1}{2}$ to 7 cts. Now, you must admit that it would be fair, for the purposes of the calculation, either to take the highest price of each kind or else the lowest price of each kind. It evidently would not be just to take the highest price of one and the

lowest price of the other to work out the comparison. But you by some oversight have done even worse than that, for you have taken 7 cts., the highest price of extracted in these quotations, and 12 cts., not the highest nor even the lowest quotation, of white comb honey, but 2 cts. below the lowest for the price of comb honey.

Your second error appears in your valuation of the sections which were given to the bees to finish. You say they ought to bring 8 cts.; but, consider that in five cases 140 of them weighed but 41 lbs. less than one-third full, and you will see that they are not only not salable but actually worth less than extracted honey for the purpose of extracting, on account of the labor and loss in weight that must be incurred if that course is taken with them; so I have put them at 6 cts., when 7 cts., the highest price of extracted honey, is taken; but when the lowest price, $5\frac{1}{2}$ cts., is taken for extracted, I have let the sections go in at the same price.

Now, taking the figures of the same hive which you considered, let us make the calculations, both with the highest market and the lowest market prices, and see how far I was wrong when I said the profit was more than 50 per cent.

41 lbs. sections at 6 cts., \$2.46; 106 $\frac{3}{4}$ extracted honey at 7 cts., \$7.48; a total of \$9.94; 110 $\frac{3}{4}$ lbs. finished comb honey at 16 cts., \$17.72. Dividing \$17.72 by 9.94 we have a quotient of 1.78+, showing a profit of 78 per cent.

Again, taking the lowest market prices we have 147 $\frac{3}{4}$ lbs. given the bees at $5\frac{1}{2}$ cts., \$8.13; 110 $\frac{3}{4}$ lbs. comb honey at 14 cts., \$5.51. Dividing \$15.51 by 8.13 we have a quotient of \$1.90, or a profit of 90 per cent. So when I said 50 per cent, I might reasonably have put it 50 per cent higher, unless there is something valid to be found in the further objections you make. You think the labor of feeding would largely offset the 23 $\frac{1}{2}$ per cent gain you figure. But, notwithstanding what you say, will not the improved condition of the colony more than offset the labor? I think so. I do not know how much this hive gained in weight; but in my experiment, made in 1893, seven colonies gained on an average about 8 $\frac{1}{2}$ lbs., which alone would repay the labor. Then you object to the greatly increased amount of brood as being probably of no use. Consider at what time of the year this additional brood will hatch—in the latter part of August and the first of September, just when they are wanted to get the colony through the winter in the best possible condition. In my estimation this would pay for the labor again.

You are of the opinion that, in my experiment, the conditions were more than ordinarily favorable. In fact, they were quite the contrary. The colony was far from strong—hardly up to the average—as at no time during the season had it more brood comb than the equiv-

alent of five L. combs. No attempt was made to do a great thing, but only to show what could be done under very ordinary circumstances. Then another adverse circumstance was the fact that the unfinished sections contained much less honey than would ordinarily be the case—a fact that would seriously reduce the apparent profit.

It can be hardly be seriously claimed that Mr. Unterkircher's experience furnishes a case in point. It was clearly a case of gross mismanagement for which there was no kind of excuse. Whatever his intentions were, he evidently permitted the bees to store the honey fed in the brood-chamber.

Lapeer, Mich., Feb. 4.

[I fear I shall have to eat humble pie a (just) des(s)ert I don't like. My only excuse was carelessness in looking over the market reports, and I am the more sorry that they appear to favor my position. It was unintentional, however. My eye must have dwelt too long on the California reports of the previous number.—ED.]

THOSE STRAWBERRIES.

A POINTER.

By M. Dea.

Blamed if I don't believe Bro. A. I. Root's a crank—just like me—on the subject of strawberry culture! Just about the full o' the moon at this season of the year the fit comes on—lie awake o' nights thinking just how and what kind to plant. I rather think the hill system is yet the best all-round method, every thing considered, and that the Timbrell, take 'em all in all, is about as good a berry as any—not but that other kinds do excellently, and really should be a part of the patch, if for no other reason than help fertilize it thoroughly; but, you know, we've all got a particular fancy for some kind.

But this must be considered: Strawberries are powerful pesky things to disappoint a fellow just when he doesn't want any foolishness. You hear of a certain kind that Bro. Jones has, that he says bears so and so many quarts to the square rod. It sounds pretty big—heaps o' money and lots of fun in those berries. Bro. Smith resolves to have a half-acre, even if it costs his muly cow. Oh, yes! the plants come on—look fine; has his land just so—as recommended: gets Mandy (that's his wife) and Liza Jane to come over to help set the plants, and they nearly break their backs; and, there! now all those berries have to do is to get right up and hump themselves to produce the stuff that sells at big prices for small quarts. That's it. Hang up the old tin pans, and make awful-looking scarecrows to keep the birds off that patch; and, Mandy, be sartain to shoo off the chickens and the boys.

June comes along finely; the plants look perfection; leaves like spinach, almost; buds a

startin', big as buttons on Liza Jane's winter coat: yes, right down blossoms, or I'm a hen. Well, well! now that's what I call big luck. Rushy Ann! Why, that means a big sum in our county bank, sure. Now let me see—40 and 39 carried several times is so much, and so many of the last picking is so much; in all—Riah Jane! hoopie! whew! Why, there'll be 'nuff money left, after paying the mortgage, to buy the old lady and darter each a fine dress, bonnets, and folderolls. Oh! I'm smart, I am! Honey and slap-jacks! What ails them meechen things? In a week the whole passel of buds and flowers has shrunk—actually turned yaller, and in July there aren't berries enough to make a respectable shortberry strawcake! That was the beatenest swindle!

No, it wasn't. The man you bought your plants of was all right—in *New Jersey*; what he said was so too; but his land is different—more gravel; yours is all rich loam, and that makes a world of difference in results. So you see the kinds that do so well on a special soil will hardly fruit at all on some others. Sabe?



THE DOVETAILED CHAFF HIVE.

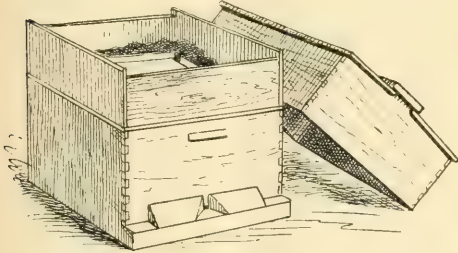
FOWLS' IMPROVEMENT.

By Chas. Fowls.

I send you by this mail a photo of the Dove-tailed chaff hive with some improvements which are new only in their adaptation to the Dovetailed chaff hive. One thing I really felt the need of was handles. They should be made by nailing strips on the hive $\frac{1}{2}$ or $\frac{3}{4}$ inch thick by one inch wide by 4 or 5 inches long. I prefer them in the middle of each end, and one inch below the water-table. If you ever try to move one of these hives when filled with bees and honey I think you will appreciate handles. There is no reason why these hives should be any more clumsy or inconvenient than the old style Langstroth, which they very much resemble. One of the conveniences of the old-Langstroth was the entrance-blocks. I've been bothered a good many times in the last dozen years in closing the entrances of chaff hives. Sometimes robbers would commence on a weak colony, then I must hunt for a stick. If too long or too thick it must be whittled; if too short or too thin, I must hunt another, the rascals all the while piling into the hive.

A 2x2-inch piece should be nailed on $\frac{1}{2}$ or $\frac{3}{4}$ inch below the entrance, so water will not run into the hive. Being 2 inches thick it makes a good alighting-board, and the front side is left rough along in the middle so they can stick

their toe-nails in to climb up, if they should bring in such "dead loads" as to fall short of the entrance (which provision was entirely unnecessary this year, as a gimlet-hole might have answered for alighting and entering). The three-cornered block formerly used for an alighting-board is sawed in two to make entrance-blocks, sawing a little piece out of the middle as shown in the picture. It is shown



nearly closed, as used to keep out robbers. But the most important feature is the tray to hold the top packing. The chaff cushion is all right for the old-style chaff hive. The old chaff hive admits of its being tucked down snugly in the corner so as to prevent drafts, yet secures perfect ventilation up through the middle of the chaff, because all dampness can pass off at once, owing to the space between the cushion and the roof. Now, this requirement is not met with the cushion in the Dovetailed chaff hive. The inside of the cover will become wet and moldy, as also the cushion. This tray secures all the conditions connected with the use of cushions in the old-style chaff hive.

Ten years ago I visited Mr. J. S. Hill, at Mt. Healthy, O. He is the author of the Hill device. I visited a few days with Mr. Muth, and he told me I must not fail to go to see Mr. Hill, as he had the best-kept apiary in the State. When I saw it I concluded Mr. Muth was not far out of the way. He had a hundred or more colonies in Langstroth hives; no grass was permitted in the apiary, but he had a stalk of flax to shade each hive. This was in the fall, and he was just cutting down the dead stalks. Each hive was provided with a Hill device and tray. I did not notice how his were made, but I'll tell how I made mine. Either the sides or the ends should be 6 inches high, so as only to let the cover telescope over the rim-piece one inch. I made the sides from the crating the hives came in. The ends should be short enough so the sides can be nailed on to them, and leave the tray $\frac{1}{4}$ inch less each way than the inside dimensions of the cover. The boards for the ends should be sawed off perfectly straight, otherwise the tray will be diamond-shaped, and the cover won't slip on and off freely. It would be better to have the ends cut at the factory, as it bothers "some folks" to saw a board off accurately.

To cut the burlap for the bottom, spread it out, and, taking the tray for a guide, cut an inch larger all around. To nail on, lay on a table or bench; put the burlap in with the edge sticking up in the inside, and fasten with thin strips, say $\frac{1}{4}$ by 1 inch, clamping the cloth fast. It takes but a few nails this way. A brick laid under while nailing will make it loose enough to cover the Hill device, or whatever is used across the frames for a winter-passage.

For packing I shall use maple leaves for the tray, as they are easy to get—no grain mixed in to entice the mice to make nests, etc. In the spring they may be thrown away and fresh ones got in the fall.

While discussing the matter of hives, I wish to call your attention to a point I mentioned to you three or four years ago. I told you that your flat covers for the Dovetailed hives were too thick. Mine were only $\frac{3}{8}$ and $\frac{1}{2}$ inch thick. You were afraid the thin cover would warp worse than the thick ones. Well, after having had an opportunity to compare them since then, I want to repeat what I said then, that the thin cover will not warp or wind nearly as much as the thick ones. You see, there is not as much wood to strain on the end pieces, which are just as heavy as those on the thick ones. In proof of this I will say I have covers only $\frac{3}{8}$ inch that I have used at least ten years, that are still as straight as ever. I don't think I should like the Higginsville cover as well as these.

Oberlin, O., Dec. 1, 1894.

[The tray may possibly give better results than the simple cushion; but as we have had good results with the latter, we have given it the preference in our catalog. The tray, if made of rough three-eighths crating, would be cheaper than the cushion, and would be easier to pack. We do not as a rule ship the hives with cushions, as each bee-keeper is supposed to fix up for himself what he likes best. I commend Mr. Fowls' arrangement. About that three-eighths-inch cover, I should like to hear from others who may be using them. I have been afraid that they would check.—ED.]



LAYING CAPACITY OF QUEENS.

Question.—I see that very many of our most practical apiarists are recommending eight Langstroth frames as the right size of brood-chamber for a strong colony of bees. Such eight-frame Langstroth hive, if entirely occupied with worker comb, contains 1168 square inches of comb, or about 58,400 cells. From this we must deduct at least 10 per cent of the space for the usual supply of honey and pollen, leaving about 52,500 cells. Allowing 21 days for the bee to hatch, and one day for the bees

to fix the cell and for the queen to lay in it again, we have an average of a little less than 2400 cells for the queen to fill per day. Now, is 2400 eggs the utmost daily laying capacity of a queen in a strong colony? and if not, should any queen be restricted to that amount when she could and naturally would lay more? I ask these questions to help me determine what size of hive to build this winter, having up to this time supposed that a ten-frame L. hive was the smallest hive that could be profitably used.

Answer.—If a colony of bees having a good prolific queen is given 30 Langstroth frames, using but 8 to start with, and adding two or three at a time, as the bees can occupy them, until the 30 are all in, it will be found that such a queen will lay from 5000 to 6000 eggs daily, during the best part of the egg-laying season, and die of old age or exhaustion when but 18 to 24 months old; while with the 8-frame brood-chamber she will give as good results in comb honey, if not better, each year, and live for four or five years. I take it for granted that our questioner is a comb-honey producer, although he does not say so, and shall give my views of the matter wholly along that line. With the large hive the bees are quite likely to get the start of the queen, and commence to store honey in the brood-combs before entering the sections at all, and in such a case the bees seem loth to go into the sections, and continue to store honey in the brood-chamber in preference to going into the sections, thus crowding out the queen with honey in the comb which ought to be occupied with brood, till we have as a result very little section honey in the fall, and a colony in poor condition for winter. Besides, it is well to remember that all queens are not equally prolific; and while 20 per cent of our queens would keep the brood-chamber of a ten-frame Langstroth hive properly supplied with brood to give the best results in section honey, the other 80 per cent would not be prolific enough to do so; hence in the majority of the hives in the apiary we should have a condition working against our best interests, which could not be overcome by the extra amount of comb honey produced by the 20 per cent whose queens were prolific enough to work in these ten-frame hives to advantage. For these reasons it would seem best to adopt a size of brood-chamber which any and all queens, which were worth keeping at all, would have occupied with brood at the commencement of the honey-flow, thus securing the best yields of surplus section honey at all times. Because a queen may lay 6000 eggs daily by using plenty of comb capacity and coaxing, it does not necessarily follow that it is to the best advantage of the apiarist to accommodate or even coax a queen to bring her fullest laying capacity to the front at any time. Queens, in any well-regulated apiary, are among the

smallest part of the expense incurred, while labor, hives, and combs go toward making up the larger part of the same. For these reasons, I claim that the capacity of the queen should rather be above the capacity of the brood-nest than below it, so that all combs may be fully occupied with brood. Unless this is the case the outside combs continue, in most cases, to be dead capital from year to year, unless we argue that they are necessary to insure the safe wintering of the bees. After an experience of over 25 years, I can not consider any argument along this insurance line as aught but fallacious.

Again, suppose that a queen can average 5000 eggs daily for a certain period. What is the price or worth of those eggs? Does the sum and substance of bee-keeping depend on keeping all queens employed at egg-laying to their fullest capacity? Bees, when they come on the stage of action at just the right time, are very valuable; but eggs are of no value, only as they tend in the direction of producing these valuable bees. Aye, they tend toward a positive disadvantage, and to take away the value we already have, only as they are looking toward the end of producing the required bees in the field at the time of the honey-harvest. Here is a point often lost sight of by the large-hive advocates. As I said before, eggs cost practically nothing; but as soon as the bees begin to perfect them toward bees, then they begin to cost; and if this perfecting is going on to any great extent at a time when the perfected product is placed on the stage of action either before or after their presence in large numbers is needed, we not only have the cost of their perfecting to pay for, but the cost of their consuming, after being perfected, as well. This consuming part, we always have to pay for; but we willingly do it at any time when the production of the individual bee is greater than its consumption. But I can see no object in doing this at any other time, simply that the extra laying capacity of any queen may be gratified. A hive that is large enough to gratify the greatest aspirations of very prolific queens, at the times of these greatest aspirations, will have too much capital lying idle in it the largest share of the year, and be a bungling hive at that. From all past experience I think that 2400 eggs per day would be a good maximum average for any queen. Rain, cold, or other disturbing influences often retard the activity in the hive and of the queen, and thus it happens that at times the best of queens often do not lay more than 1000 eggs in a day, while, with the right conditions, she may multiply this number by four, and still have plenty of room in a hive which will give an average of only 2400 daily. Then, again, as two and one-seventh generations of bees can be brought on the stage of action to where one steps off, we find that, in a hive giving an average of

2400 bees daily, we can have in that hive, if properly managed, 108,000 bees on the stage of action right in the honey-harvest, when their productive power is the greatest; and at such a time such a number of bees are a host to roll honey into the sections with the combs all filled with brood below; and this rolling of honey into the sections, means the rolling of money into the bee-keeper's till. Experience has shown these men who are advocating an eight-frame L. hive that such is the best, as this keeps the frames full of brood, and puts honey into the sections. However, all our questioner (or any one else) has to do is to use part ten-frame and part eight-frame hives in their apiary, when a little time will satisfy them which is best.



In order to make a symposium on the subject of bee-paralysis, we have concluded to hold over Mr. Baldensperger's article, which we promised for this issue. A valuable one on the same subject will be given from the pen of Dr. J. P. H. Brown, of Augusta, Ga.

THE editor of the *Review* echoes the same thought that has come to me at times regarding the value of other bee-journals besides our own. He says:

Apicultural literature was never better than it is to-day, and this in the face of about the hardest times financially and apiculturally that we have seen in a long time. As journal after journal came in for December, all bright, fresh, well-printed and illustrated, and crammed with interesting and helpful articles, I fell to wondering if my own journal appeared as attractive to the other editors as theirs did to me. If it did I am satisfied. Bee-keepers have every reason to be proud of their literature.

"HONEY-BEE CONCERT" is the title of a leaflet gotten out under the auspices of the Ontario Bee-keepers' Association. It took place on Wednesday, Jan. 23. Its object was purely educational, designed to bring in outsiders. I have no doubt it was a grand success. The following is the program that was laid out:

1. Instrumental duet, Mrs. Scarff and Mrs. Bruce.
2. Address by President A. Pickett.
3. Quartette, Misses Mark and Eason, and Messrs. Irving and Hepburn.
4. Solo, Mrs. Stone.
5. Address by Hon. John Dryden.
6. Solo, Mr. H. F. Gadsby.
7. Recitation, Mildred Gemmill.
8. Magic-lantern exhibition and lecture, Mr. R. F. Holtermann.
9. Violin solo, Mr. R. W. Roberts.

It could hardly fail to be entertaining and educational. The scheme is a good one, and I hope it may be repeated in some form at the next N. A. B. K. A., to be held at Toronto.

D. A. JONES, PAST AND PRESENT.

I LEARN from the *Canadian Bee Journal* that one of the factory buildings (the largest) of the former D. A. Jones Co., Limited, went up in fire on the 30th of December last. Beeton has been very unfortunate in its fires. The office of the *Canadian Bee Journal*, founded by D. A. Jones, was burned out once, and now virtually all that remained of the once large supply business with it is gone also. The building was used for other purposes, and was owned by Dr. Cheffy at the time of the fire.

By the way, where is our genial friend of old, D. A. Jones, whose fame shot forth so like a meteor? There was a time when he was the leading bee-keeper of Canada, the leading bee-editor, the leading supply-dealer, a leader in apicultural thought, and a man known the world over. He traveled over the Orient, and spent thousands of dollars in the pursuit of new races of bees, and later established queen-rearing on islands of Georgian Bay. While we remember him for his brilliant past it would be a pleasure to know something of his present, even though not a bee-keeper now.

THE PRESENT WINTER, AND WHAT IT MEANS TO BEE-KEEPERS.

In our locality we have not had for years such prolonged and severe weather with high winds as we are now having. We scarcely ever have more than ten days or two weeks of cold weather, and then we have a thaw and a few warm days. But up to date, Feb. 8, our bees have not had a flight since Christmas. Indeed, the mercury has scarcely been up to the freezing-point. For the past four days it has been hanging, both day and night, close to zero—scarcely varying a degree one way or the other; and, more than this, there are high winds. I am well aware this is not cold compared with some localities. Indeed, Dr. Miller says, in the first *Straw* in this issue, that his thermometer showed 23 below zero on the morning of the 5th; and I doubt not it has been very much colder in other northern localities. Well, then, if this winter is so much colder than former ones, which I think it is, it is going to be a terribly hard one on bees, for bee-keepers have a habit of preparing rather for mild winters than for severe ones. The result will be, unless I am very much mistaken, and unless the weather moderates considerably, that there will be severe winter losses, and, as a consequence, there will be discouraged bee-keepers with a lot of supplies on hand, perhaps unpaid for. But it is the outdoor colonies that will suffer, I fear, and particularly those that have not been put into double-walled hives or winter cases. I do not wish to forebode calamity; but I think it would be well for bee-keepers to consider the possibility of their losing heavily, and therefore not requiring the supplies that might otherwise be needed. I am well aware that this

may chop off some of our orders; but I think it is only fair for bee-keepers to be properly on their guard.

Now let us turn to a more encouraging view of the situation. Cold winters, accompanied with snow, as is this winter, are said to mean an abundance of clover; and that, of course, means honey. The moral is, *save* your bees and get the honey.

BOGUS HONEY.

The following letter will explain itself:

Friend Root.—The attached letter was received by me in answer to an advertisement for a situation as stenographer or book-keeper. As it seems to settle a number of questions in regard to bee-keeping, I thought it might interest you. The "king bees" had better get together and form a trust or they will soon find their occupation gone. W. HICKOX.

Lakewood, O., Feb. 2.

And here is the letter referred to. It is very evident that Mr. McCarthy got hold of the wrong man. It is a little surprising that he should "give himself away" quite so bad.

Box 108, Lakewood, O.:

Dear Sir:—Do you care to take an interest in a good paying business? I have an article whose merits are unequalled in the markets: it is manufactured honey, made from the oils and extracts of flowers that the bee gathers its honey from. I put it up in 1-lb. jars, labeled and sealed ready for the market, at a cost of 7 cts. per lb. It retails at 20 cts. per lb. I am a poor man, and have to work for my living. I have not got the money to go ahead with, and want some good honest man to take one-half interest and help me put the goods on the market. This is a good chance for the right party; so if you do not care to investigate, perhaps you have a friend who would. I have explained the best I can at present. Hoping to hear from you soon I remain

Respectfully yours,

1732 St. Clair St., Cleveland. W. J. MCCARTHY.

I thought best to give our readers the contents of the letter from Mr. McCarthy. I do not know certainly whether he intended to put this manufactured "stuff" on the market as pure honey or not; but the presumption is rather that way. Mr. McC. says he is a poor man and wants some good honest man to take an interest in the business. Honest man! it would be hard to find one who would engage in that business—that is, *providing* he proposes to sell bogus honey for the pure. If any of our readers in Cleveland are located where these goods are sold they will oblige us by giving the particulars.

ADVANTAGE OF CHAFF HIVES IN THE CELLAR.

We have generally supposed that single-walled hives were plenty warm enough for cellar wintering; that to put *chaff hives* in such a place was both an unnecessary expense and a waste of cellar room, to say nothing of the work of toting these unwieldy things, full of bees and stores, up and down steps back and

forth. Notwithstanding it looks like wearing an overcoat in the house. Doolittle has decided (see *American Bee Journal*) that it *pays*, both in the saving of stores, and the better condition of the bees. This conclusion he has reached after some carefully conducted experiments, and now not only seven-eighths of all his colonies are in chaff hives, but three-fourths of them are in the cellar. His chaff hives have loose bottom-boards, and are raised up from the same while in the cellar by blocks of stove-wood. In summing up he says:

I have just been in to see them, so that I might tell the reader the difference between these and those in single-walled hives. Those in the single-walled hives are clustered closely on all parts of the cluster—bottom, top, and sides—the same as they would be outdoors, only not quite so completely; while those in the chaff hives are clustered just as closely as the others at the bottom of the cluster, and a little way up the sides; but as you come toward the upper half of the colony, the bees stand out around the combs the same as they would in summer; while at the top, all along next to the cushion and cotton cloth, they make no pretension at clustering whatever, although you can look at them a long time without any of them stirring, no matter how close you hold the light to the hive. In this way they have free access to all parts of the hive, so a colony never starves, so long as there is any honey in the hive, by their eating the honey from one side and falling to move over, as is frequently the case.

But the greatest item of the whole is, that these colonies in chaff hives do not consume nearly as much honey as do those in single-walled hives, while the safety of their wintering successfully is more fully assured; for the less honey consumed by a good colony of bees insure their more perfect wintering. Where hives are wheeled right into the cellar, as I do mine, the labor of putting them in is little more than with single-walled hives, and this labor question is all there is against the matter, except that a less number can be put into a given space; and the saving of honey will, I think, more than compensate for the extra room needed, and pay for building a little larger, where it should be necessary.

I am inclined to think Doolittle is right. At all events, it would be well for a few others to try the same experiments. If you have any double-walled colonies out doors that look as if they would go up before spring, put them in the cellar now. But, say—it occurs to me that the great majority of the makes of chaff hives, perhaps all of them, have tight bottoms. Colonies in winter cases can be so tried at all events.

FIVE-BANDERS RECEIVING MORE HARD KNOCKS FROM BEE-EDITORS.

THE editor of the *Canadian Bee Journal*, after stating that he is as anxious as any one to have bees which will give large yields of honey, which are easily handled, and which have beauty, says this:

Were we to engage a man or maid to perform our work simply on account of looks, it would be

better for us to give up business or for our friends to lock us up in a lunatic-asylum. We think it would be well for bee-keepers to examine themselves and see what leads them to be favorably impressed with the "five-banded Italian bees." Is it not their beauty? Should they not rather regard that as very secondary, and look for the primary requisites before launching out in eulogies? We have tried various five-banded queens from what were supposed to be the leading breeders of these bees. They have thus far done nothing remarkable in the direction of good works, whatever they may do during the coming season. Thus far we have not found them particularly good for building up—rather to the contrary. Next, although they showed no marked trait when in a normal condition, we have found the workers in two instances, being every instance in our case, very irritable when in that condition. We remember a queen secured from a lady in the South in the fall of 1893. A good big price was paid for the queen, and also a second purchased. Although going into winter quarters strong in bees it was in poor condition in the spring, and was on only three frames when the next poorest was on eight. After a great deal of trouble, and the refusal on our part to add another \$5 to the returned queen and get a "first-class," we had the offer to give us a \$5 queen at half the price of the first. This we accepted, and the queen came to hand, with the admonition that, for \$5, the progeny would not be all five-banded. They can not, therefore, be considered a very fixed strain of bees.

Last year the Ontario Agricultural and Experimental Union took in hand to make tests with these five-banded Southern queens. Five queens of the leather-colored Italian strain were also supplied—in all, 25. The queens were supplied between July and October 2, and they are to be tested for gentleness, longevity, honey-gathering qualities, etc. Thus far every one having the leather-colored Italian and the five-banded Italian, without soliciting this fall a reply in this direction, mentions the superiority of the leather-colored queen as to prolific qualities. Four of the five-banded queens have already been superseded, which does not speak well for their longevity; several were also lost in introduction. We notice that the Vermont bee-keepers are, at their coming convention, to discuss whether it is advisable, in view of the prevalence of bee paralysis in the South, to purchase queens from there. If those wide-awake Vermont bee-keepers begin to doubt the wisdom of such purchases, the rest of us may well hesitate. Let us not add another disease to battle with.

I also notice that Editor Leahy, in the last *Progressive*, pays his respects to them in this fashion:

I have never received a so-called "five-banded" queen from Mr. Doolittle, but 4 or 5 years ago I ordered one direct from Mr. Hearn, paying him \$3.50 for her, this being his price of tested queens. This queen produced the most worthless, and at the same time most vicious bees that I ever had any experience with (hybrids not excepted), they being small, with a black shiny spot at the end of the abdomen. The following winter they dwindled away and died on the summer-stand, yet they were packed in sawdust. Since then I have ordered five-banded queens from a number of other breeders with some very good results and some very bad.

Editor Alley, in the *Apiculturist*, has been giving those golden fellows "regular fits." Editor Hutchinson, in the *Review*—well, I can't find where he stands, so I'll put him on the fence, and Editor York beside him. I have been on both sides of the aforesaid fence; but I have stayed longer, and on the side of the opposers of the yellow fellows; indeed, I feel more inclined to stay there because the majority of the testimony seems rather to be against them (the yellow bees).

OUR RELIGIOUS PAPERS AND ELECTROPOISE.

We copy the following entire from *Electricity* of Jan. 9, 1895:

There can be no defense. The publications accepting that advertisement confess a willingness to make money by aiding a swindle. Yet the *Churchman* has the hypocritical effrontery to descant upon the evils of the Sunday newspaper:

"The discussion of the Sunday newspaper at the Church Congress gave much satisfaction to Christians interested in the preservation of the brief hours of the Lord's Day for the development of the spiritual nature of man; and the words of the more seriously minded of the speakers were uniformly devoted to impressing upon churchmen the inevitable loss sustained by those who either neglect divine worship for the attractions of the Sunday newspaper, or attend the services of the church with minds and hearts indisposed by such reading, to receive their hallowed influences."

The evils of the Sunday newspaper, however great they may be, would better be pointed out by some paper like the *Sunday School Times*, the *Christian Advocate* of New York, or the *Western Christian Advocate* of Cincinnati, papers whose advertising space is not for sale to promote a fraud, and which can at least come into the discussion of a moral question with clean hands.

We do not know how many other religious papers are still carrying the Electropoise advertisement, but the stain of dishonor and corruption rests on every one of them.

The moral is so plain that we need not add any thing. However, I wish to call attention to the excellent recommendation they indirectly give our old friend the *Sunday School Times*, in the above.—A. I. R.

CORRECTIONS.

On page 110, the senior editor, in speaking of the cement pavement used in Jacksonville, meant to say that it is a sort of limy *marl* instead of *marble*. He says his amanuensis wrote it marble, and that he is sure he corrected it; but there it stands, as plain as print, without a mark on it, *marble*. On page 111 he meant to speak of the children as being *neatly* dressed, and not *mottley*. There being no loop in the top of the *e*, the word looks just like *motty*, and we supplied the last *e*, thinking he had omitted it by a slip of the pen.

A. I. R. is again writing on the subject of bees (see this and next issue), with his old-time enthusiasm, of what he sees in Florida. I speak of this because he has not written on apicultural matters to any extent for a number of years. His writings have been confined largely to general subjects of travel, gardening, and things that pertain to our general conduct and its relation to heavenly things.



OUR RAILROADS AND RAILROAD CORPORATIONS.

It is so common to hear complaints in regard to our railroad companies that it may sound a little odd to say a word in their favor. So far in our experience, however, we have met nothing but the kindest courtesy. My wheel was laid down here in Jacksonville without a bit of expense. Of course, we checked it as baggage, and our luggage was laid down at our rooms at a very trifling expense. Porters were gentlemanly and exceedingly obliging. I met one of them on the streets of Jacksonville after I had been here a day or two, and I was really glad to shake hands with him, even if he is colored. By the way, I have heard people speak of the insolence and exorbitant charges of the waiters here in Florida. So far we have seen nothing of the kind, but quite the contrary; and I have been wondering if it is not true that education is beginning to tell on these people. I have been studying them, their ways and habits, very intently since we came here, and I think I can say this: They not only seem to be exceedingly good-natured, cheerful, hopeful, and full of spirits, but they are, as a rule, industrious working people. Quite a little excitement has been occasioned among them by the advent of the Dahomey Village that appeared at the World's Fair. They have a tent here, and have a street parade during the day. The enthusiasm among their own people here in Jacksonville is almost wild. A circus or show entirely in the hands of full-blooded Africans from their own country is to them an event unprecedented. These native Africans are models of physical health and development. There seems to be a pretty sharp line drawn between the colored people and the whites in this city. Where they do business back and forth, each race seems to keep within certain limits; and I am told intermarrying and amalgamation is comparatively rare.

When I explained to the different railroad officers here where I wanted to go, and told them what I wanted to do, they were more obliging than I had any reason to expect; and not only in the way of giving me full directions and assistance, but in making very reasonable charges.

IN SAN MATEO.

This morning we are at A. F. Brown's beautiful ranch. The most conspicuous object on the grounds is the magnificent great live-oaks with their spreading branches draped with festoons of Spanish moss; in fact, nowhere else in our travels have we seen either, in such wondrous perfection. It is our pleasure to meet here two bee-keepers of considerable prominence—V. V. Blackmer and Chas. D. Duvall. Mr. Blackmer has been associated with friend Brown in his bee-business; and friend Duvall, the queen-breeder, is assisting friend Brown, and raising queens for himself. There is a point right here, friends, that may be worth while to consider. After a bee-keeper away up north has his bees safely put away for the winter he can come down here and have lots of fun, and, may be, do some good by following his chosen pursuit all winter long. The principal drawback is the expense of so long a trip; and I hereby petition the railroad companies to make a low-rate round-trip ticket especially for bee-keepers to come down, say in December, and go back about the first of April. It would be a comparatively easy matter, it seems to me, for

a hundred bee-keepers or more to club together and send in a petition before next winter. GLEANINGS and the other bee-journals will, without doubt, help it along, and may be we editors could take a trip down and look the boys over and see whether they behaved (went to meeting Sundays, etc.), when their wives were not around—that is, providing said wives did not go along.

Now for the oaks and moss: One great oak right close by the house—in fact, it shades quite a part of the extensive verandas—has great spreading branches that actually measure from "tip to tip" something like 90 feet. Imagine a large symmetrical apple-tree occupying a circle nearly 100 feet across, and every limb and branch draped with delicate lacework of this beautiful moss. Now imagine these long tresses rippling in the wind like the soft flaxen hair of a playful child.

Our friends mentioned have just been transferring bees from box hives and log gums into the latest pattern of improved hives, sent by carload lots from a place away up north, where a lot of Roots, old and young, work together to fix out bee-keepers down south and elsewhere. Perhaps you may be surprised when I tell you that these friends, in transferring bees, have actually made thirty-two in a day. The new hives under the waving mossy trees present a very pretty view indeed. We are promised a picture of it.

MIGRATORY BEE-KEEPING IN FLORIDA.

Friend Brown is making a specialty of migratory bee-keeping. He usually gets his first crop of honey here from orange, then he transports his bees by boat and rail to New Smyrna, or some place on the coast where his bees can get palmetto honey; then he goes to the mangrove regions on the coast, but ten or twelve miles from the palmetto country. After this he takes in the yellow-partridge peas on the pine lands of the interior; next he gets honey from wild goldenrod and sunflower on the prairie river-bottom lands, making four or five crops in a year. A single colony thus transported by way of experiment, gathered last season 576½ lbs. of honey; and an entire apiary (he says) can be made to average from 260 to 350 lbs. Mr. B. has made 16 moves in four years, with only two failures. Of course, much judgment and skill must be exercised in deciding when and where to move. He has kindly given us the following list of sources of honey which can be reached within a radius of from forty to sixty miles: Pennyroyal, December to February; orange, February and March; tyty, during March; tupelo gum, March and April; palmetto in May; mangrove in June and July; cabbage palmetto, July; yellow-partridge pea, August; goldenrod, September; sunflower, and goldenrod of another species, in October and November; maple in December and January; gallberry, March and April.

In this vicinity are acres upon acres of the most beautiful orange-orchards I have ever seen in my life; and at the present writing the ground is literally yellow—yes, sometimes heaped-up yellowness—with frosted oranges. Many fears are indulged in that the trees, at least many of them, are killed as well as the fruit. Of course, all the orchards are not up to such a standard of perfection as I have mentioned; and upon asking why one orchard showed such luxuriance of growth while the one adjoining was dilapidation and ruin, I was told it was all in cultivation and fertilizers; and our well-known northern brands, say the Bradley, Bowker, Mapes, etc., are being used largely with excellent results. I am very glad indeed to know this. I was curious to know whether the Florida rock phosphates were also used

here, but I am told they are not much used—at least in this locality.

There is no gardening going on around here; in fact, we have seen nothing I could call gardening as yet in Florida—hardly so much as a bed of onions, lettuce, or radishes; neither is anybody planting potatoes, notwithstanding the fact that Irish potatoes shipped from the North bring 40 or 50 cts. a peck! neither does any one keep a cow and pig, as we people do up north, and yet milk is 10 cts. a quart; eggs, 25 to 35 cts. a dozen, and other things accordingly. I have several times suggested having potatoes shipped direct from expert growers up north; but people here mostly buy a peck or so at a time; and it takes so many "middlemen" to get a carload of potatoes into the hands of the consumer that the expense would bridge over the difference between 50 cts. a bushel and 50 cts. a peck. Notwithstanding, I am sure there is an opening here, for both sweet and Irish potatoes are on the table at almost every meal, and I for one should like the fun of selling milk for 10 cts. a quart. If I couldn't get alfalfa or some other plant to furnish cow-feed it would be funny. I asked one of the milk-men, as he was going his rounds, what they fed their cows down south. He looked at me for a moment just as if he thought I was a meddlesome, no-account Yankee; but he finally answered in a sort of surly way, as he turned his back to me, "Cotton-seed meal and bran." Now, look here; why can't somebody get that cheap wheat and corn that comes from Missouri for 35 cts. a bushel, you know, down here, and convert it into milk at 10 cts. a quart? Why, there is a gold-mine in the speculation. You see, you don't have to lay out a great deal of money in frost-proof stables. Mr. Brown said a wire fence around the outside, and a cotton cloth for a tent-like cover over the top would be all the stable the cows would need.

Oh! just a word more about the moss. Friend Brown says it is an air-plant, and the only reason why it is found on the trees is that it wants a place to hang on, up in the air. He said it would grow just as well hanging across a wire fence as on a tree; but friend Blackmer says it isn't so. Mr. Blackmer is old and gray-headed, like myself, and knows a lot more than these young chaps, even if they have lived in Florida all their lives. I have a private speculation of my own, that perhaps we might feed the cows on the moss—that is, we would have the moss take the place of hay while we were feeding them on corn meal and bran.

THE PICNIC ON THE RIVER.

Bee-keepers are geniuses, as I have often said before; especially are the successful bee-keepers men of mechanical and scientific attainments. Friend Brown has an electric gasoline launch for running about on the river. The boat is only 21 feet long, and it is worked by a $\frac{1}{2}$ -horse-power engine. To-day it pulled a string of three boats, loaded with picnickers. When I first saw the crowd that was to go, I feared the little launch would hardly handle them all; but it took us some eight or ten miles and back in fine style, I tell you. I think I never enjoyed a picnic more. The thing that added to my enjoyment was that I had a place close to the engine, and was enabled to study carefully its working. Almost twenty years ago (in fact, it was at the Centennial Exposition, in Philadelphia) I first saw a gas-engine. In this first crude affair the gas was exploded by a burning jet, and it sent the piston away up with a tremendous explosion. The modern machine occupies very little room for the power it generates; in fact, the *cylinder* is about the principal part of the machine. A small quantity of gasoline, measured out exactly for the

work required, is turned to vapor, then mixed with the proper proportion of atmospheric air to produce an explosive compound. This compound is fired in the cylinder by an electric spark, and the force of the explosion gives the power. It seems almost incredible that all this could take place at each stroke of the piston when the engine made as many as five revolutions *per second*. I enjoyed most heartily every rod of our trip after I had the hang of the machine enough to see how it did its work. It really propels the boat by a series of "kicks"—yes, vigorous kicks—and the kicks are at the rate of five a second. Where is the kicker who can beat that? Now, mind you, besides this it occupies such a very small space that it can not possibly blow up, because it really *does* blow up five times every second—that is, all it *can* blow up. There is no boiler, and no reservoir of any thing but gasoline, and this is away off at the other end of the boat. Great precautions are taken to prevent this reservoir from letting loose the gasoline any faster than the engine uses it. By great carelessness the gasoline pipe *might* be broken so as to let the dangerous liquid out into the boat. Then if some one should throw a match into it, it *might* burn. But even in such a case, as the boat is always in the open air there could be no real explosion. The occupants might get their clothing set on fire; but all they would have to do would be to climb over into the water and let themselves down until the fire was out.

While I was enjoying seeing the thing work, I could not but reflect on the amount of brains and hard study that had, step by step, during these twenty years past, conquered obstacle after obstacle, and brought the machine to its present state of perfection. In fact, it seems almost impossible that any really valuable invention can come about in any other way. Not only must one man make it, perhaps, a life study, but other men, and often succeeding generations, work out these great triumphs of human intelligence over the forces of nature.*

By the way, friend Brown proposes, if I am correct, to make this gas-engine launch help him in his migratory bee-keeping. You see, he can put a pretty good-sized apiary on a cheap raft, or lighter, and then this little giant of strength and power, this compact "genii" of boiled-down power and energy, will take the whole apiary and fairly make it skim over the St. Johns River and tributaries, to any point where honey may be coming in. We just had the nicest crowd of boys and girls, in my opinion, to be found in Florida, or any other land; and let me say to you confidentially that Mr. Brown's little sister, who presides over his housekeeping affairs in a model fashion, is not one whit behind the rest of the crowd; and, by the way, what a grand thing it is to *have* a sister! Of course, you all know I think a wife is about the nicest thing in the world; but if one hasn't a wife, a sister is the next best thing. Dear reader, have you looked after that sister of yours as you ought? Do you realize what a gift, straight from the great God above, she is or ought to be? Suppose you go and tell her now what I am saying; and you may add, too, that I have had large experience, and am good *authority* in the matter.

The St. Johns River is one of the prettiest rivers in the world. Oh! I forgot to mention

*I hope our readers will excuse me for once more touching on Electropoise right here. These people have the cheek and effrontery to claim that they too have "evolved and studied up" some great invention and discovery, whereas they have been only hatching up a series of lies. So ingeniously have they built up their cause that one might well be deluded if he did not look closely into the matter.

that there is a host of *little* rivers, or sort of side issues, perhaps you might call them, that branch off from the St. Johns, and they turn and twist in every direction. The water in these little rivers is like that mentioned in Georgia. It has a brilliant dark color, from the roots of the tropical vegetation probably; and when the water is still it reflects the luxuriant growth upon its banks like a polished steel mirror. When we first came down to the St. Johns River I was agreeably surprised to find my old friend, the water-hyacinth, all along the banks, and lining the edges of the stream and its tributaries for *miles and miles*. Some places they grow out into the river for several rods. Here is a fact for our experiment stations. Friend Brown tells us that, six years ago, there wasn't a water-hyacinth on the whole river; but some one threw in a plant. Now there are acres and acres of it, and great clumps looking like little islands are constantly floating down. When we landed for dinner I discovered these plants sailing up stream—or, at least, so it seemed to me. I asked for an explanation, and was told the water of this river runs *both ways*—up stream when the tide is coming in, and down stream when it is going out. The women-folks of our party pitched into me because I remarked, "Friends, I have often heard of contrary women; but I have never before seen a *river* that changed its course, and went directly contrary in just one short twenty-four hours." The raftsmen, whom we found along the river, take advantage of this queer phenomenon for transporting their logs. They let their rafts loose when the current is in the direction they wish to go.

Somebody said there wasn't any good drinking-water in Florida; but after drinking several times the water I dipped from the side of the boat from the St. Johns River and tributaries, I call it excellent—in fact, as nice as rain water caught from the clouds, in a clean tin pan.

The dark color, which I mentioned before, Mr. Brown says is caused by tannic acid from the roots of various trees along the shore; but this in no way affects the taste, so far as I can discover. The St. Johns River in some places is more than five miles wide, and I should be quite happy indeed if I could always have as good water as this to drink when I am thirsty.

A FISH-STORY.

Of course, our picnic party fished on the way. Well, I am not going to tell just how many fish we caught; but friend Brown says there is a place on the Indian River where, if you go out in a boat and carry along some lights, the fish will jump into the boat in order to get to the light; and if you don't put out the lights when the boat is full they will actually jump in until the boat sinks. We have not been to that place yet; but as Mr. Brown is a very good man, we feel quite sure it must be true. Friend Blackmer was wicked enough to say that it seemed to him it was *considerable* of a "fish-story." I did see a fish with my own eyes that I thought must be an alligator, and a big one (a yard long or more, I mean); but the rest of the party assured me that it was a black bass, my favorite dish.

When we arrived at Daytona I thought very likely my wheel might be the only one in town; but as we prepared to get off the train I was agreeably surprised. Wheels for both ladies and gentlemen were everywhere, and I soon found out the secret of it—the beautiful shell roads and cement streets and sidewalks, besides the splendid wheeling either up or down along the beach. Many of our older readers are more or less acquainted with Dr. Jesse Oren, who lives in Laporte City, Ia., in summer, and Daytona in the winter. Dr. Oren met

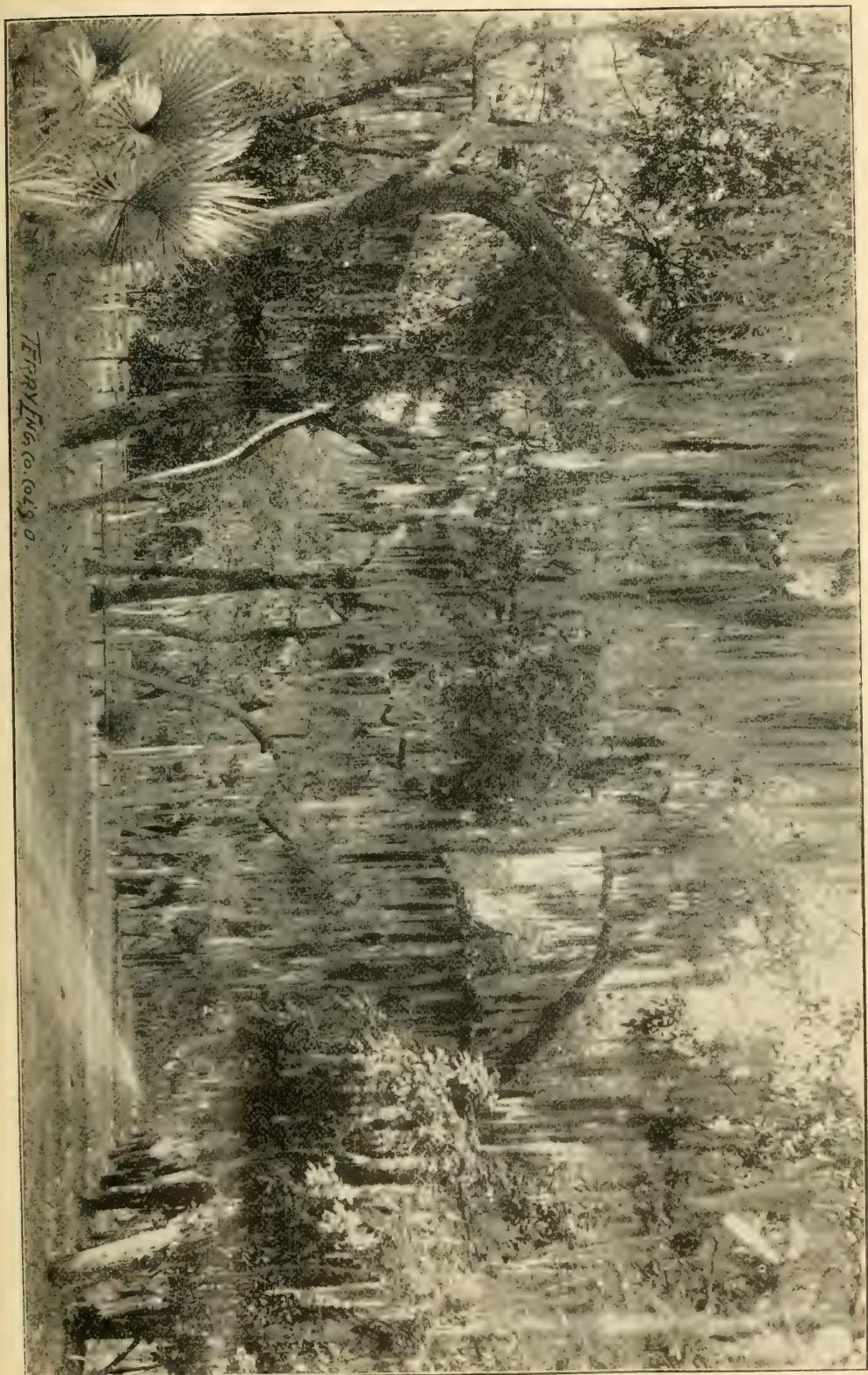
us at the train, and Constance and his daughter were soon old friends, to all appearance. Before we reached their beautiful home we were both quite captivated by the beauty of this place. Most of the inhabitants are well-to-do people from the North. The consequence is, the dwellings are all fine ones. The people are intelligent, and up to a high state of civilization. The beautiful roads are made from crushed oyster-shells, and these are obtained along the beach and near the river, heaped up in great mounds in many places, evidently left by a former race of people who piled up the shells after having used the contents for food. Among the shells are found fragments of pottery, which from their similarity have marked these places as the work of the mound-builders, found so generally over the United States.

Another way of paving the streets is from a kind of cement or marl, spoken of heretofore. This cement is found in various places, a mile or two out of town, occupying a foot or two just below the surface of the forests. The forest-trees are removed, the black woods dirt carted to town for gardens and lawns, and then the marl is taken out in huge blocks, pulverized, mixed with water and sand, then poured down for pavements.

Here for the first time we see forests literally made up of palms and palmettoes. The sight of these beautiful straight trunks or smooth stems running away up fifty or sixty feet without a branch or limb, and then ending with a tuft on top, again and again makes me feel strangely, some way, as if I were in fairyland. Just imagine a dense forest made up of nothing but these trees, ranging from a palmetto just coming out of the ground, all the way up to a full-sized tree.

If you are out in the woods, and get hungry, and are so fortunate as to have an ax, you can chop out a good chunk of cabbage from any cabbage-palmetto at any season of the year, and you may eat your cabbage cooked or raw. The doctor says you would hardly know it from common cabbage, but you will have a lot of work to get it out. These beautiful trees are left all through the streets, dooryards, gardens, and back yards all over Daytona. The main street is 100 feet wide, left this width to preserve the beautiful native forests of palmettoes and live-oaks, draped with the moss I have described.

The adjoining pictures give you a glimpse of what we see about this beautiful place, the one showing the blossoms in the head of a cabbage palmetto; and great quantities of beautiful honey are gathered every year from this source. Dr. Oren has been spending his winters here for the last ten years. He is now engaged in putting up some beautiful cottages for rent to bee-keepers or others who may wish to stay over winter here. A pretty little cottage that he says was built at a cost of \$500 has so much captivated my fancy that he has promised to have a picture of it taken to be given to the readers of GLEANINGS, at an early date. Such a cottage rents for \$90 a season, the season to be a whole year or any part of the year, only you must pay the \$90 if you have it during the season that Northerners usually come here. Bee-keepers will certainly do well to take in Daytona, and they shouldn't fail to call on Dr. Oren, for he can post them in regard to almost every thing they want to know. We find here these same artesian wells that are such a providence to all of Florida. By putting down a pipe only about 80 ft., enough water pours out for family use; and by going down still farther a much larger volume of water is obtained. Dr. Oren has just one such well for a group of cottages, and it furnishes something



TERRY LUG CO. 60490

HEDGEWOOD AVENUE, DAYTONA, FLORIDA, SHOWING THE FLORIDA AIR MOSS.

Notice.

Pacific Coast Bee-keepers.

We are Northwestern Agents for The A. I. Root Company's supplies, and can make prices that will interest you. Send us a list of your wants, and see if we can not save you money.

POSSON'S SEED STORE,
Portland, Oregon.

SECTIONS.

\$1.35, \$1.75, \$2.00,
\$2.50, \$3.00 per M.

They
are
all
good,
too.

We keep from two to three carloads of supplies in stock, hence can fill orders promptly.
Let me know your wants. '95 catalog ready.

I. J. Stringham, 105 Park Place, N. Y. City.

The New Craig Seedling Potato.

For full description of this Potato, see page 959 of this journal for Dec. 15, 1894. Prices: 1 lb. by mail, postpaid, 25 cts.; ¼ peck, by freight or express, \$1.00; peck, \$1.75; ½ bushel, \$3.00; bushel, \$5.00; barrel of 11 pecks, \$12.50. The above prices will hold good as long as our stock lasts. All orders by mail will be filled as soon as received. Orders by express will be shipped at once unless ordered otherwise. All orders for potatoes by freight will be filled April 1, or soon after that time, unless directions are given to ship at an earlier date. In this latter case I do not assume responsibility for loss in freezing; but where it is desirable to ship earlier, and customers have bad luck, I expect to help them out so far as I can consistently. In regard to my responsibility I would refer you to A. I. Root. In fact, where it is more convenient you can order potatoes of the A. I. Root Co., instead of sending your orders to me.

GEO. E. CRAIG, Zimmer, Franklin Co., O.

B 4 U Buy Seeds or Plants,

Send for my Annual Catalog. It is neatly gotten up; no old stereotyped matter about it; nothing sensational. The Best Varieties truthfully described and honestly priced. A. I. Root says, "I believe I have read every catalog you have put out clear through, and I wish all seedsmen would tell us their experience with different varieties as frankly as you do." True Prizetaker onion seed and plants a specialty. Vegetable and small-fruit plants of all kinds, trees, and supplies for gardeners. Send for free catalog at once, or send 10c for catalog, a pkt. of a new smooth very early tomato, a pkt. of the best new lettuce, a pkt. of true Prizetaker onion, and a pkt. of choice flower seeds, all for 10 cents.

Christian Weckesser, Niagara Falls, N. Y.

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DON'T MONKEY NOW.

Order early to be ready for the harvest.

Root Co.'s Supplies kept in stock.
36-page catalog free.

We have low freight rates.

JNO. NEBEL & SON, High Hill, Mo.

Raspberry Plants For Sale.

Gregg for late; Hilborn for medium; Palmer for early.

These are standard varieties, giving almost universal satisfaction.

They are the kinds to plant for berries.

Price \$1.00 per hundred; \$7.00 per thousand, F. O. B. at Lodi.

W. R. GRANNIS, Lodi, Ohio.

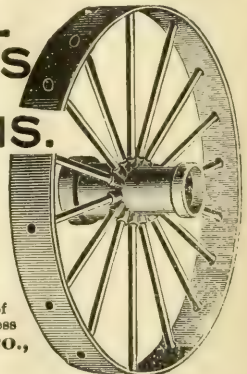


FOWLS AND EGGS

17—STANDARD BREEDS—17
All eggs sold from birds scoring
92 points and upwards.
Our large Catalogue mailed on receipt
of 4 cents. Circulars FREE.
F. S. STALL, Quincy, Illinois

METAL WHEELS for your WAGONS.

Any size you want, 20 to 56 in high. Tires 1 to 8 in wide—hubs to fit any axle. Saves Cost many times in a season to have set of low wheels to fit your wagon for hauling grain, fodder, manure, hogs, &c. No resetting of tires. Catlg free. Address
EMPIRE MFG. CO.,
Quincy, Ill.





SWEET-CLOVER SEED.

If any of our readers have sweet melilot or Bokhara clover seed to sell, we shall be glad to have them mail us samples, stating how much you have and what you ask for it per lb. We are sold out, and orders are coming quite freely.

LOCAL DEALERS IN BEE-KEEPERS' SUPPLIES.

As we go to press we are just issuing our circular of prices to local dealers. We desire a progressive agent to represent us in every good locality for bees, and we have special inducements to offer. If your name is not already on our books as an agent, and you are acting in that capacity, let us hear from you.

ALSIKE CLOVER SEED.

The supply of alsike seed seems to be plentiful, and our offers for it have been so freely accepted that we now have a good stock of choice seed which we are able to offer at lower prices. For the present we offer choice seed at the same price as peavine or mammoth clover—16c per lb.; \$2.00 per peck; \$3.80 per ¼ bush.; \$7.20 per bush.; \$14.00 for 2 bush., bag included in each case.

BEESWAX ADVANCED.

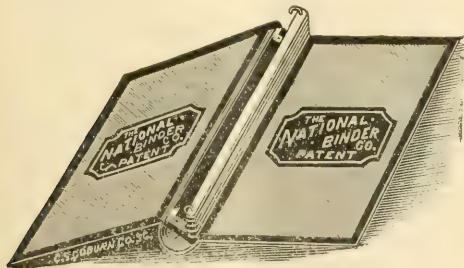
The market continues bare of beeswax, and prices are higher. We quote an advance of 2 cents a pound over our last quotations, and will, until further notice, pay 28c cash, 31c in trade, for average wax delivered. We can not offer refined wax for sale in small lots for less than 35 cents. Is there not an opening at such prices for bee-keepers in some sections to produce wax rather than honey, at the present low prices for the latter?

SIMPLICITY AND OLD-STYLE HIVES.

Our readers who have received new catalogs, have no doubt noticed that we do not list the Simplicity portico and old-style chaff hives. We consider the Dovetailed hives superior, and they are lower in price. If any old customers who have a supply of these old-style hives, and do not care to change, wish to buy more of the same kind, remember we are still prepared to furnish them at the same prices as heretofore.

DOVETAILED HIVES—NEW LIST.

If any of our old customers do not like the new plan we have adopted this year, of including nails and brood-frame starters with complete hives, they are at liberty to order hives at the old list, put up in the old way. In that case be careful to state in your order that you order from old list. The freight rebate mentioned inside of front cover of catalog will not apply to such orders, but only to those ordered from the new list which comply with the conditions made in the catalog.



COMMON-SENSE BINDERS.

M. H. Mendleson, of Ventura, Cal., recently asked the price of these binders in lots of 6 to 12, and adds, after acknowledging receipt of a sample, "It is so convenient and neat, I'd like to bind GLEANINGS for a number of years past." This only shows how the binder is appreciated. May be there are other

readers who would like to do likewise. Price of the binders, all cloth, 65c each; with leather back and corners, 75c; postage, 17c extra. In lots of 3 or over, 5c each less; 10 or more at 10c each less. There is no better or more convenient binder made.

KIND WORDS FROM OUR CUSTOMERS.

QUEENS SUCCESSFULLY MAILED TO TASMANIA.

It is with pleasure that I have to inform you that your select tested queen, dispatched to me in September, arrived all safe and in fine condition on the 16th of October. There were only two dead bees in the cage. I introduced the queen by hanging the cage in the hive for 24 hours, and then turned her loose, and she is laying quite vigorously.

Cedar Hill, N. S. W., Nov. 1, 1894. A. E. AYERST.

Mr. Root:—The two beautiful queens you sent me arrived here on the evening of the 19th of October. They were quite frisky, and only four dead bees in each cage. Probably they were hurt in caging them. They were so fresh and lively that I feel quite sure I could have added a little more candy and sent them off for another 14 or 21 days' journey.

W. P. CLENNETT.

Port Esperance, Tasmania, Nov. 1, 1894.

Mr. Root:—For about fourteen years we have kept company. These years have had their joys as well as their sorrows. Your kind talks have helped to clear away many dark clouds, and left the skies brighter. GLEANINGS makes me feel as if the world, after all, consisted of something besides dollars and cents. May the blessing of God go with you to the end.

J. E. LAY.

Hallettsville, Texas, Dec. 24.

OUR AGRICULTURAL BOOKS, ETC.

We do not agree out here with W. I. Chamberlain with regard to 2 ft. 6 in. being sufficient in heavy clays. The book is full of useful practical wrinkles, especially that with regard to the method of cutting the clay in digging by hand. I see no reference to it in the Tile Drainage; but the deeper the pipes are laid, the smaller they may be. Here, for instance where we have an average rainfall of 49 inches per annum, and occasionally 12 or 13 inches in two days, if we drained 2 ft. 6 in. only, and used 1 inch tiles, it may be the soil would become water logged, and tiles unable to carry it away; but where they are 4 ft. down, the soil acts as a regulator, and gradually passes it through; whereas in shallower drainage the water passes through with more of a rush. Of course, with deep drainage the soil is much more drought-resisting than with shallow, and you do not seem to be free from that complaint, "want of water," yet. The book entitled "Our Farming" is just grand, and reads like a tale. The chapters on clover and manure-saving are worth many times the price of the work. We are having a splendid season here this year, and the bees are booming. Honey is cheap—about 5 or 6 cents per lb. for extracted, wholesale; but some of our apiarists get large yields. My district is very poor and limited.

C. F. JEANNERET.

Wybalca, N. S. W., Oct. 18.

WOVEN WIRE FENCE

Why pay 60 to 90c. a rod for fence when you can make the best Woven Wire Fence on earth, horse high, bull strong, pig and chicken tight, for

13 to 20c. A ROD?

A man and boy can make from 40 to 60 Rods a day. Over 50 different styles Catalogue Free Address, **KITSELMAN BROS.,** Ridgeville, Indiana.

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LIBERAL
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FRANKLIN H. HOUGH,
925 F STREET, WASHINGTON, D. C.

STAHL'S EXCELSIOR



Spraying Outfits kill insects, prevent leaf blight and wormy fruit. Insure a heavy yield of all fruit and vegetable crops. Thousands in use. Send 6 cts. for catalog and full treatise on spraying. Circulars free. Address

WILLIAM STAHL, QUINCY, ILL.

MUTH'S HONEY EXTRACTOR.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives,
Honey Sections, Etc., Etc.
Perfection Cold-blast Smokers.

APPLY TO

CHAS. F. MUTH & SON, Cincinnati, O.

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers."

SIMPLEX HATCHER & BROODER Combined.



THE MOST PERFECT Incubator Made. Hatches every egg that a hen could hatch; Regulates itself automatically; Reduces the cost of poultry raising to a minimum. Send for Illustrated Catalogue. 160 Egg size \$16.00.
SIMPLEX MFG. CO., Quincy, Ill.

Promptness is What Counts.

Honey-jars, Shipping-cases, and every thing that bee-keepers use. Root's Goods at Root's Prices, and the Best Shipping-point in the Country. Dealers in Honey and Beeswax. Catalog free.

WALTER S. POWDER,
162 Massachusetts Ave., Indianapolis, Ind.
Please mention this paper.



PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey. Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,

12tfdb Sole Manufacturers,
Sprout Brook, Montgomery Co., N. Y.

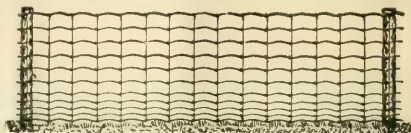


Fruit Plants. Where to buy them at wholesale prices. Send postal card for descriptive and wholesale catalogue of all of the leading varieties of **Strawberries, Raspberries, blackberries, Currants, Gooseberries, Grapes, and Potatoes.**
EZRA G. SMITH, Manchester, Ont. Co., N. Y.
Please mention this paper.

BEGINNERS.

Beginners should have a copy of the Amateur Bee-keeper, a 70-page book by Prof. J. W. Rouse. Price 25 cents; if sent by mail, 28c. The little book and the Progressive Bee-keeper (a live progressive 28-page monthly journal) one year, 65c. Address any first-class dealer, or

LEAHY MFG. CO., HIGGINSVILLE, Mo.



A Perfect Park Fence

Is shown in our January "HUSTLER," with a full view of ten large Elk. It surrounds the P. W. W. F. Co.'s Park of 40 acres, confining also a herd of 15 deer. We call it **perfect** because no animal gets in or out "without a pass." Bounded on three sides by public roads, it has been thoroughly tested by dogs. With posts four rods apart there is no sagging, no obstruction to the view, and above all it **costs less** than a paling fence for the same purpose. Send for **Free** copy. Address **PAGE WOVEN WIRE FENCE CO., Adrian, Mich.**

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TAKE NOTICE!

BEFORE placing your orders for **SUPPLIES**, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. **PAGE & LYON MFG. CO.,**
8tfdb New London, Wis.

HATCH CHICKENS BY STEAM

WITH THE MODEL

EXCELSIOR INCUBATOR.

Thousands in Successful Operation. **SIMPLE, PERFECT, and SELF-REGULATING.** Guaranteed to hatch a larger percentage of fertile eggs, at less cost, than any other incubator. Send 6c. for Illus. Catalogue. Circulars Free.
GEO. H. STAHL, 114 to 122 S. 6th St., Quincy, Ill.

Lowest priced First class Hatcher made.

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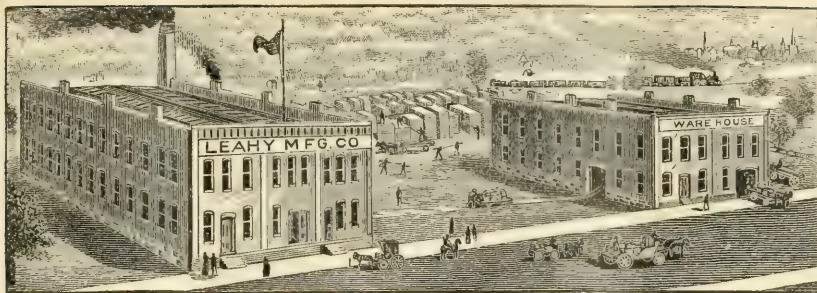
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Largest Factory in the West. **COMPLETE STOCK.**
GOOD SUPPLIES and LOW PRICES. Our Motto
 We are here to serve you, and will if you give us a chance. **Catalogue Free.** Address
 1-6cl **LEAHY MANUFACTURING CO., Higginsville, Mo.**



Blue Beauty or Giant Perennial Sweet Pea.—Flowers two inches across and two and a half inches long; a lovely shade of azure-blue with feathery markings of deeper blue and a dash of pure, clear white in the centre of each. Forms a dense vine 6 to 8 feet high, covered with blossoms, surpassing in beauty the finest Clematis. Hardy, growing more beautiful from year to year. Seeds, 15c per packet.

Pink Beauty, (Kosteletzkyia).—One of the greatest floral novelties of the age. Perfectly hardy and covered all summer and autumn with flowers as large and almost as round as silver dollars, which are of the most tender and charming bright rosy-pink imaginable. Blooms first year from seed and forms a dense plant three feet high, that remains in perfection a lifetime. Succeeds everywhere. Seeds, 25c per packet.

Strong blooming Plants, of either, by mail, each 25c., or 3 for 50c.

ELEANOR, the only large very early Strawberry. **MARY and HENRY WARD BEECHER**, the biggest and best of all strawberries. **PLYMOUTH ROCK**, the most valuable cherry. **LOVETT'S BEST BLACKBERRY**. **SUNBEAMS CANNA**, immense pure golden flowers. **FAXON SQUASH**, the finest vegetable of modern times. A host of other valuable novelties, and all the good old sorts of **FRUITS, FLOWERS and VEGETABLES**.

A FLOWER GARDEN for 25c.

To prove by results the superior quality of our seeds we will mail ten full-sized packets of Flower Seeds for 25 cents. These packets contain hundreds of varieties and with the simple culture a child of ten years can give, will produce a brilliant display of beautiful flowers all summer and autumn and plenty for cutting for the house. Also ten full-sized packets of Vegetable Seeds, all choice varieties, selected especially for boys, for 25 cents.

Everything is fully described in our **Guide to Horticulture**, a book of 150 pages, copiously illustrated and beautifully printed; and full instructions given for planting, pruning, culture and management. To all who order any of the above, the **GUIDE** is sent **FREE**. To those who send **TEN CENTS**, and say where they saw this advertisement, we mail a bulb of the lovely Variegated-leaved Tuberose, three bulbs of Gladiolus and the **GUIDE**.

250 Acres of Nursery.

41st Year.

25,000 feet of Greenhouses.

The LOVETT CO., Little Silver, New Jersey.

HONEY COLUMN

CITY MARKETS.

KANSAS CITY.—*Honey.*—The stock of comb honey is large; market well supplied. Fancy white 1-lb. combs, 15; amber, 12@13. Receipts of extracted, light; white, 7; amber, 5½@6; southern, 4½@5. Beeswax, 22. **HAMBLIN & BEARSS,**
Feb. 20. Kansas City, Mo.

BOSTON.—*Honey.*—We beg to quote you our market without change to price, and with a little better demand for honey. Fair stock on hand. hand, with some inquiry. **E. E. BLAKE & CO.,**
Feb. 8. Boston, Mass.

SAN FRANCISCO.—*Honey.*—Honey is scarce, but not in active demand. We quote extracted honey, 6@7; comb, 1-lb. frame, 8@10. Beeswax scarce at 27@28. **SCHACHT, LEMCKE & STEINER,**
Feb. 13. San Francisco, Cal.

KANSAS CITY.—*Honey.*—There is no change in the market on honey or beeswax. Honey is very slow sale. Business otherwise is about the same. **C. C. CLEMONS & CO.,**
Feb. 14. Kansas City, Mo.

DENVER.—*Honey.*—Our market remains without much change. No. 1 comb honey in 1-lb. sections moves slowly at 11@12; No. 2, 9@10. Extracted, No. 1, in 60-lb. cans (2 in a box), 6@7. There is an improvement in the demand for extracted honey. We can handle to advantage a quantity of pure beeswax at 22@25. **R. K. & J. C. FRISBEE,**
Feb. 11. Denver, Col.

ST. LOUIS.—*Honey.*—Inquiries are larger, and demand somewhat better. We quote choice clear comb, 14½@15; amber, 13@13½; extracted, in barrels, 4@5. Prime yellow beeswax, 25½. **D. G. TUTT GROCER CO.,**
Feb. 19. St. Louis, Mo.

PHILADELPHIA.—*Honey.*—Comb honey slow sale. Large lots offered at 9@11. No pure white-clover in this market. Extracted honey is not in such good demand, on account of storm paralyzing all business; fair sale at 4@6. Beeswax very scarce; sells quickly at 30@32. **WM. A. SELSER,**
Feb. 19. 10 Vine St., Philadelphia, Pa.

NEW YORK.—*Honey.*—We are gradually working down our stock of comb honey, and the indications are that we shall succeed in disposing of all of the white honey, and possibly all of the dark, during the spring, at following quotations: Fancy white 1-lbs., 12; fair, 10; buckwheat, 8@9. The market is well supplied with extracted. Demand is fair for choice grades, while common stock is neglected. We quote: White-clover and basswood, 5½@6; buckwheat, 5@5½; Southern, 45@55 per gallon, according to quality. Beeswax firm, and in good demand at 30@31. **HILDRETH BROS. & SEGELEN,**
Feb. 20. 28 & 30 Broadway, New York.

MILWAUKEE.—*Honey.*—The market does not seem to present any new features on honey since our last report. The demand has been dragging, and we suppose the very cold weather has had some influence on consumers. Yet we think it would be good for them to eat more instead of less. We quote 1-lb. sections, best, 15@17; average, 13@15; common, 12@14. Extracted, in barrels, white, 6@7; same, in kegs, 6½@7½; dark, in barrels and kegs, 4½@6. Beeswax, 24@26. **A. V. BISHOP & CO.,**
Feb. 21. Milwaukee, Wis.

CINCINNATI.—*Honey.*—Demand is quiet for all kinds of honey. Best white comb sells at 14@16 in the jobbing way. Extracted brings 4@5 on arrival. Beeswax is scarce, and in good demand at 23@28 for good to choice yellow. **CHAS. F. MUTH & SON,**
Feb. 20. Cincinnati, O.

BUFFALO.—*Honey.*—The honey market is very quiet; still it is moving off in a moderate way. Fancy, 13@14; choice, 11@12; poorer grades are very dull, and at irregular prices. Buckwheat honey slow at 8@10. Extracted, very little in market, and very little demand. **BATTERSON & CO.,**
Feb. 19. Buffalo, N. Y.

CLEVELAND.—*Honey.*—The demand for white comb honey is somewhat slow. No. 1 1-lb. sections are selling at 13@14; No. 2, 11@12. No. 1 water-white extracted, 6@8. Beeswax, 28@30. **WILLIAMS BROS.,**
Feb. 18. 80 & 82 Broadway, Cleveland, O.

DETROIT.—*Honey.*—Stock of comb honey slowly decreasing. Best white continues to sell at 14@15. other grades, 11@13. Extracted dull at 6@7. Beeswax in good demand at 27@28. **M. H. HUNT,**
Feb. 19. Bell Branch, Mich.

CHICAGO.—*Honey.*—Since the weather has moderated, a better demand has been felt on the market; yet the sales are of small volume. White comb brings 14@15, according to its grade; dark is slow at 8@10. The demand for extracted is not brisk, and stocks are fair, of all kinds except white-clover. It sells at 5½@7. Beeswax, 28c for ordinary run. **R. A. BURNETT & CO.,**
Feb. 21. 163 So. Water St., Chicago, Ill.

FOR SALE.—Three tons of pure basswood honey in 30-gallon barrels; also nearly three tons in 15-gallon kegs. Price, 6½c; in lots of a ton or more, 6c, f. o. b. Barrels at Mauston, kegs at Durand, Wis. Address: **F. McNAY,** Mauston, Wis.

Closing out balance of my fine extracted basswood honey at 7c f. o. b. Who is not supplied?
ELIAS FOX, Hillsboro, Wis.

ALFALFA HONEY, very white, thick, and rich. Two 60-lb. cans at 7c. Same, partly from cleome (tinted), 6c. Samples, 8c. **OLIVER FOSTER,** Las Animas, Col.

We yet have extracted alfalfa at \$7.80 per box of 120 lbs. **AIKIN BROS.,** Loveland, Colo.

BEESSWAX WANTED.—Will pay 31½c cash for absolutely pure beeswax that will stand chemical test. Write me at once. **WM. A. SELSER,** 10 Vine St., Philadelphia, Pa.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb and Prompt.

FAY'S Are a Paying Crop to Grow for Market.
PROLIFIC I have a large quantity of extra strong
RED well-rooted bushes for sale cheap.
CURRENTS **FRED. H. BURDETT,**
CLIFTON, NEW YORK.

2 and 3 frame nuclei cheap by the dozen.
AUG. LEYVRAZ, Francis, Fla.

25 Imported Carniolans

Ready for immediate delivery at \$5 each. Bred in 1894 at the most elevated point among the Carnic Alps where bees are kept. Daughters of these queens ready in April, \$1 each; \$10 per doz. Address
The Carniolan Apiaries, Charlton Heights, Md.

The Irish Daisy Potato

Gave the largest yield of 11 varieties; 12 lbs. to the hill. Seed direct from Wm. Henry Maule. Will fill orders as long as my stock lasts at 1 lb., 30c; 3 lbs., 75c postpaid; by express or freight, 1 peck, 60c; bushel, \$1.75; barrel, \$3.50. Second size by freight or express one-fourth less.
L. D. GALE, Stedman, N. Y.

SEED POTATOES. Colvin's New Ideal. Best new Potato, E. Vorthier, Carman No. 1, Banner, 20 varieties; Dutton Flint Corn, Seed Oats, Small-Fruit Plants, etc., at **Hard Times Prices.** Price List free. Address
GEO. H. COLVIN, L. Box 6, Dalton, Pa.

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CONVENTION NOTICES.

The Utah Bee-keepers' Association will hold its semi-annual meeting on Thursday, April 4, at 10 A.M., in the Fish Commissioner's rooms, in the new city and county building, Salt Lake City.
GEO. E. DUDLEY, Sec., Provo, Utah.

The next meeting of the Western Washington Bee-keepers' Association will be held on Monday, April 8th, in Horticultural Rooms, City Hall. Bee-keepers are invited.
G. D. LITTOY, Sec., Tacoma, Wash.

Peaches.

CROSBY FROST-PROOF.

—If you want Peaches every year, and plenty of them, plant the Crosby. It fruits in New England every year, never having failed in eleven years, even when all others were killed by the winter. It is of large size, beautiful orange yellow, splashed with carmine, and of best quality, ripening about mid-season. 20 cents each; \$2.00 per dozen, postpaid.

CHAIR'S CHOICE.—A very large, late, yellow-fleshed variety, very handsome; rich, juicy, firm; flesh of excellent quality; freestone, and a superior canning-peach. 20c each; \$2.00 per dozen, postpaid.

LOVETT'S WHITE.—For a late white Peach, nothing could be more desirable. Large, perfectly white, freestone; an annual bearer of rich, luscious, juicy fruit. 20 cts. each; \$2.00 per dozen, postpaid.

MOUNTAIN ROSE.—An old reliable and very valuable Peach, ripening early; large size, skin whitish, and nearly covered with rich, dark red; a valuable family and market sort. 20 cents each; \$2.00 per dozen, postpaid.

Larger trees of above, by express, at same price. I can also furnish Crawford's Early, Crawford's Late Elberta, Beer's Smock, Stump, Old Mixon, Wonderful, Ford's Late White Peaches. 20c each; 6 for \$1.00, postpaid; or larger, by express, at purchaser's expense, at same price.

The above "ad." is copied verbatim from a beautifully illustrated catalog for 1895. These descriptions are accurate. The peaches are just as represented. I would, however, select Ford's Late and the old Smock as worthy of being emphasized—equal to any peaches ever grown. I have all the sorts named above, and more. All are guaranteed true to name. Great pains and care will be taken that every tree that I send you shall grow. 10 trees, one or several sorts, by mail, 60c; 100 trees, by express or freight, \$4.00.

Japan Plums. Abundance, Burbank, and Satsuma. By mail, 5 for 60c; by freight or express, \$10.00 per 100.

Flora Vista, San Juan Co., New Mexico, }
Jan. 17, 1895. }

John Cadwallader.—Dear Sir:— * * * I received the order of 100 peach-trees last spring. They reached me in splendid condition. Also ten plums.
HENRY STEINBACH.

Cedar Grove Farm.

John Cadwallader, Proprietor, North Madison, Ind.

References: } First National Bank, Madison, Ind.
A. I. Root, Medina, Ohio.
Please mention this paper

For Sale, at hard-times prices, a winter home at Tampa, Fla. Lot and two cottages. Rent of one cottage pays good interest on investment. Twenty best colonies of bees in apiary, ordered before April to ship May 1, \$70.00. Write for particulars. Mrs. F. Averill, Howardsville, Va.

For Persons

Reference, Editor
of Gleanings.

Desiring a milder climate, now is the time to invest in Florida. For information, write F. Danzenbaker, Box 100, Jacksonville, Fla.

For Sale. \$450 buys my home and apiary, just inside city limits; 1 acre of land, 4-room house, good shade and fruit trees, 25 colonies of fine Italians; lots of sweet clover all around me. Address P. J. T., Box 2, Fredonia, Wilson Co., Kan.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must say you want your advt in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices of offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

A GENTLEMAN owning a fruit-farm near this city wishes to employ a man with experience in the bee business to build up an apiary and meanwhile assist on fruit-farm. Address
WALTER S. POWDER, Indianapolis, Ind.

WANTED.—To exchange bees, queens, and eggs (from B. P. Rocks, S. C. B. Leghorn, and Light Brahmas), for bee-supplies or offers.
CHAS. H. THIES, Steeleville, Ill.

WANTED.—To exchange Knickerbocker medical battery, breech-loading rifle, and Stainer violin, for bees, printing-press, or offers.
D. H. TWEDDY, Box 54, Dillonvale, O.

WANTED.—To exchange some Bibles, albums, steel engravings, etc., for colonies or nuclei of bees, or offers. W. T. ATKINSON, Auburn, N. Y.

WANTED.—To exchange cushion safety for blood-ed pigs or offers. A. F. AMES, Claremont, Va.

WANTED.—To exchange strawberry-plants, the best varieties, cheap, for brood-foundation, the yellow Italian bees and queens in their season.
MRS. OLIVER COLE, Sherburne, Chenango Co., N. Y.

WANTED.—Position in apiary, by man of experience. L. H. GREENE, Wichita, Kan.

WANTED.—To exchange 100 new and second-hand hives (standard L frame) for offers.
T. P. ANDREWS, Farina, Fay, Co., Ill.

WANTED.—By an apiarist, 10 years' experience, a position with some man making a specialty of bee-keeping or supply work.
J. B. HENDERSON, Roney's Point, W. Va. Box 96.

WANTED.—To exchange a 10-inch Root foundation-mill, good as new, for hives in flat, or sections 4¼x4¾, 7 to foot.
A. W. GARDNER, Centreville, Mich.

WANTED.—Position in apiary; experience, good reference, single.
E. H. FUHRMAN, Pleasant Home, O.

WANTED.—To exchange supplies and other goods for honey. O. H. HYATT, Shenandoah, Iowa. 20tf

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 200 colonies of bees for anything useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—A quantity of drawn combs.
I J. SPRINGHAM, 105 Park Place, N. Y.

WANTED.—To exchange telegraph stock for bees or nursery stock in spring.
W. G. CHAMBERLAIN, Pittsfield, Me.

Over \$5.00

Is what it costs to take the leading bee-journals, even if secured at clubbing-rates. The BEE-KEEPERS' REVIEW endeavors to give the CREAM of all these journals, and it costs only \$1.00. If you can't afford to take all of the journals, yet wish to be well informed in apicultural matters, try the REVIEW.

W. Z. HUTCHINSON, Flint, Mich.

LISTEN HERE! 160-Page Bee-Book FREE

To every New Subscriber sending \$1.00 for the **Weekly American Bee Journal** for a year. (The book is "Bees and Honey" by Thos. G. Newman). Besides articles from the best bee-keepers, the Bee Journal now has 6 Department Editors—Mrs. Jennie Atchley in "The Sunny Southland"; "Canadian Beedom" by "Bee-Master"; "Questions and Answers" by Dr. C. C. Miller; "Notes and Comment" by "Ex-Pres. E. T. Abbott"; "Doctor's Hints" on good health, by Dr. Petro; and "Among the Bee-Papers" by "Gleaner," who gleanes the best from all the bee-papers each week. Space forbids telling more. Better send for **Free Sample Copy**, or \$1.00 as per above offer. **20-Cent Trial Trip** 3 months or 13 wks.) to New subscribers

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GEORGE W. YORK & CO., 56 FIFTH AVE., CHICAGO, ILL.

E. KRETCHMER, RED OAK, IOWA,

SENDS FREE HIS CATALOG OF 72 ILLUSTRATED PAGES; DESCRIBES EVERYTHING USED IN THE APIARY; BEST GOODS AT LOWEST PRICES. CAPACITY ONE CARLOAD A DAY. WRITE AT ONCE FOR HIS CATALOG.

4-8

I told you so.

Mrs. Atchley:—The one-frame nucleus I got of you last spring gave me 120 well-filled one-pound sections.

J. A. SMITH, Heber, Utah, Oct. 9, 1894.

Now, haven't I told you that it will pay to send bees north in the spring?

One-frame nucleus, \$1.00; 10 or more, 90c each. Bees by pound, same price. Untested queens to go with them, 75c each.

Untested queens by mail, \$1.00 each; \$5.00 for 6; \$9.00 per dozen, till June; after, 75c each; \$4.25 for 6, or \$8.00 per dozen. I breed the leather-colored Italians, 5 bands, and Carniolans, in separate yards, at safe distance.

Tested, 3 bands, \$1.50 each; 5 bands or Carniolans, \$2.50 each.

Fine breeders of either race, or imported queens, \$5.00 each. Full colonies with untested queens, \$6.00.

Ask for discounts to dealers, and by quantities.

The only steam bee-hive factory in south Texas. Root's goods, Dadant's foundation, and Bingham smokers.

Safe arrival on every thing guaranteed. Send for FREE catalog that tells all about raising queens.

JENNIE ATCHLEY, Beeville, Bee Co., Texas.

Woodcliff Business Queens.

To please all, am breeding both Leather-colored and Golden 5-banded Italians. Have five apiaries, 3 to 5 miles apart, running 350 nuclei. Your orders filled promptly. Can furnish queens from March 1st to Nov. 10. The Leather-colored 3-banded Breeder, imported from Italy, Oct., '94.

The Golden 5-banded Breeder, selected from 1000 queens, some producing 400 lbs. of honey to colony. State what you want, and send orders now for early delivery. Guaranteed queens, 75c; special low price in quantities. Send for descriptive catalog.

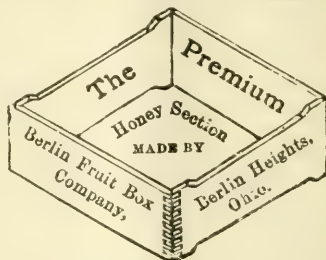
Wm. A. Selser,
Wyncote, Pa.

World's Fair Medal

Awarded my Foundation. Send for free samples. Dealers, write for wholesale prices. Root's new Polished Sections and other goods at his prices. Free Illustrated Price List of every thing needed in the apiary.

Bell Branch, Mich.

M. H. Hunt,



WE have a large stock of SECTIONS now ready, both No. 1 and No. 2. Write for special prices on winter orders in large or small lots, including all other Supplies. Also Berry Crates and Baskets made up or in flat.

Address
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BERLIN FRUIT BOX CO.,
BERLIN HEIGHTS, O.

Are you Looking For the BEST

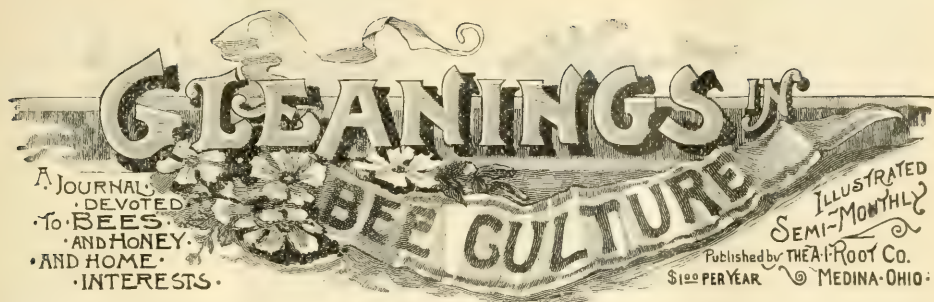
In bee-hives, sections, cases, etc.? If so, drop us a postal and we shall be pleased to send you a copy of our 1895 catalog and price list.

G. B. LEWIS CO.,
Watertown, Wis.

420 Lbs. Average

Is what my bees gave that I moved to the man-grove; those at home, 300 lbs. each; 5-banded bees, too. Queens, bred for business from this stock, will be sent in 1895 for \$1.00 each until May; per doz., \$8.00. Circular free.

J. B. CASE, Port Orange, Fla.



Vol. XXIII.

MAR. 1, 1895.

No. 5.

STRAY STRAWS

FROM DR. C. C. MILLER.

"No ONE can write for bee-keepers but bee-keepers," says *British Bee Journal*.

DADANT says queens are less likely to go up and lay in shallow frames than in deep ones.—*A. B. J.*

"APICULTURAL literature was never better than it is to-day."—*Review*. Right you are, W. Z.

336 POUNDS of comb honey is what J. D. Endicott reports in *A. B. J.* from a colony hived June 10.

TWO COLONIES whose hives stood 3 inches apart, are reported in *A. B. J.* as working together all summer.

FORMALIN, a near relative of formic acid, is spoken of in the German bee-papers as the coming cure for foul brood.

GRAVENHORST thinks bees contract their entrances toward winter, not to keep out enemies, but to keep out chilly winds and the light.

IT IS AN OLD fable, that, to eat fish, makes brain. U—m! Why is it that fish are so plentiful and brains so scarce?—*Dr. Peiro, in A. B. J.*

PEACH-PITS, one eaten every hour or so, are recommended by Dr. Peiro, in *A. B. J.*, for cough and whooping-cough; and for dyspepsia, baked apples.

GRAVENHORST finds that a swarm furnished with foundation from the start is not a whit ahead of one which is first compelled to build five or six natural combs.

A COMB, no matter how many times it has been filled and emptied, becomes constantly better and stronger for extracting purposes.—*Chas. Dadant, in A. B. J.*

A MUTUAL-INSURANCE company of bee-keepers at Lueneburg is mentioned in *Centrablatt*, having had a successful career of 15 years. It prevents damages to bees through spite work,

as the loss to the individual bee-keeper is slight.

J. A. GREEN says, in *A. B. J.*, that he once had a large lot of queen-cells built in January, and sold the royal jelly at \$25 an ounce, presumably for medicine.

H. W. BRICE says in *B. B. J.*, that, when he has trouble uniting bees, it's always those with old queens, while bees with young prolific queens may be united almost any way.

GREAT WILLOW HERB, *Epilobium angustifolium*, says R. H. Ballinger, in *A. B. J.*, has for years been used by the Indians from Neah Bay to Alaska for making thread and fish-nets.

THE *Nebraska Bee-keeper* gives quite a full list of honey-plants in Nebraska, and says, "It well repays the apiarist for even breaking off small limbs" of box elder so the bees can get the exuding sap.

QUICK CURE for bad cold. Mix a tablespoonful of honey in as much lemon juice in a big pint of water, dusting into this a little cayenne pepper. Drink at once, and keep warm in bed.—*Dr. Peiro, in A. B. J.*

IN BRUSHING bees off combs when it's too cold for them to crawl back into the hive, put two or three bottomless hive-bodies over the hive and brush the bees into this as into a funnel. So says J. A. Green, in *A. B. J.*

MOTHER.—"You are at the foot of the spelling-class again, are you?"

BOY.—"Yes'm."

"How did that happen?"

"I got too many z's in scissors."—*Good News*.

A PARADISE for bees is described in *A. B. J.*; and then the question is asked, "How many bees can be kept there in one apiary?" The answers vary from 75 to 500 colonies, which goes to show that no one knows much about it.

THE *Review* reports a new non-swarmer arrangement of L. A. Aspinwall. Near swarming time, between each two brood-combs is put a half-inch board filled with holes like cells, but running clear through. The bees can't fill

those holes, and they think there are too many empty cells to swarm.

"BEES WILL WINTER better in the cellar, if in chaff hives, than they will in single-walled hives, providing they are fixed as they should be in the cellar." Each hive is raised three or four inches from the bottom-board, and its cap is taken off. The bees eat less, and hence are healthier. So says Doolittle.

NEAR THE CLOSE of the main honey-flow, put ripe queen-cells in supers or extracting-stories, and in four cases out of five your old queen will be superseded.—*E. F. Quigley, in Review.* I tried a lot in that way, and all failed. But I did it at the beginning of the honey-flow.

"DO THE FIVE-BANDED Italians average better than the three-banded or worse?" To this question in *A. B. J.*, Doolittle replies, "Equally good or better during 1894." Dr. Tinker thinks favorably of them, while the rest either think there is no difference, or that they are not so good.

THIS JOKE is on me: T. P. Andrews sends a postal: "Why don't you look in the Standard dictionary when you want to know what a word like *lysol* means?" Looking, I find, "Lysol. A saponified product of coal-tar, containing cresol: used as a disinfectant." So that's the new foul-brood cure. But, say; isn't there a law against writing "sassy" things on a postal?

DADANT, in the *Review*, takes the ground that the greater or less ductility of foundation is not due to the manner in which it is *melted*, but to the *manipulation* that it undergoes when cold; that rolled foundation is like wrought iron, and Given or cast foundation is like cast iron; and, moreover, that, "foundation which has been standing a long time becomes more and more brittle, so that, at the end of a couple of years, a piece of molded foundation is about as brittle as a piece of fresh Given foundation." [We are now working on a set of *rolls* to make Given foundation. In comparing the article from the press, I found that its distinctive feature was thick and heavy side walls, and these can be made on rolls as well as on the press. Our Mr. Washburn, from a sample of Given, made a punch to emboss the rolls that I expect will duplicate the side walls of Given foundation made by Mr. Taylor on his press. We made some experiments in this line last summer, and the results were exceedingly gratifying. This time we propose to go one step further, and make an exact duplicate of Given on *rolls*. Now, then, we confidently expect that this wax will have all the good qualities of both the rolled and the Given foundation. Well, now, do not go and send in orders; because, as soon as the wax is ready, due announcement will be made, so that all can test it who desire.—*Ed.*]



LARGE HIVES.

WHY THEY ARE MORE PROFITABLE; EGG-LAYING CAPACITY OF QUEENS, AND ITS RELATION TO THE SIZE OF THE BROOD-NEST.

By C. Dadant & Son.

Friend Root:—Your little editorial on large hives, page 101, was duly perused; and the taunt that it contained, viz., "Now that there are more bee-keepers on their side, perhaps they can set forth their views with more assurance," had the desired effect; for we were preparing an article in reply when we received your letter calling our attention to this matter. Indeed, after all we said on the subject, in *Langstroth Revised*, especially pages 150 to 153 (see note at bottom of page 152), and after all the articles we have written from time to time in different bee-journals, what do you expect us to do to get the bee-keepers to try large hives? Must we adopt the plan of the train-robbers, who ask for your money or your life, and demand of you and others "*large hives or your life*"? Would that be setting forth our views with "assurance enough" to suit you?

We have never lost an opportunity of setting forth our preference for the large hive and for the large frame; nor is it a whimsical fancy that led us to this preference, but a protracted experience with three kinds of hives—the ten-frame Langstroth, the eleven-frame Quinby, and the fourteen-frame American. We began with a nine-frame hive here, in 1864 or '65, the frames of which were about like the American frame, and increased these hives to 14 frames in the course of a few years. We have had for 30 years from 10, at the beginning, to 60 hives of this style in use. We still have about 60 of them. We then tried the eight-frame Quinby; and afterward, in 1868-'69, made these hives with from 10 to 14 frames, finally settling on the eleven-frame as the best size for us. Then, as we were selling bees in hives in large numbers, in 1872-'76, we concluded that we had best keep the then most popular hive, the ten-frame Langstroth, and we made 100 of them. These, with a few eight-frame Quinby hives, were kept first in a separate apiary, and later were divided in equal numbers with larger Quinby hives in two different apiaries. In spite of the meager returns of those small ten-frame Langstroth hives, we kept a number of them until three or four years ago, for the reason that, when a colony of bees was purchased of us, it was usually wanted in a Langstroth hive; the bee-keepers who bought such colonies having their apiaries already stocked with this style of frame. But as we found, again

and again, that the smallest crops came from the smallest hives, on the average, and that, whenever the crop was short, twenty-seven out of every thirty small hives had to be fed, while the large colonies had generally enough, we transferred all the bees out of these ten-frame Langstroth hives, and we now have a lot of these old hives piled behind our honey-house, waiting for a buyer. But they will probably soon make kindling-wood.

The same experiments have been made by large producers in this country and in several countries of Europe, with the same results. Some of these are related in Langstroth Revised.

That a large hive gives better results may be easily explained, and without rational contest, since it can not be denied that the amount of honey gathered by a colony is in proportion to the number of bees the hive contains. The writers of old books on bee culture, being unable to reckon correctly the number of eggs that a queen could lay, had guessed it very much too low. Now it is proven that most of the queens, in favorable circumstances, lay 3500 eggs in 24 hours, during spring. We have ascertained that some of our queens laid more than 4000 eggs; and a bee-keeper, Mr. P. Bois, of Jersey, a reliable man, reported in the *Revue Internationale*, that one of his queens laid as many as 5000 eggs in 24 hours. Is there any thing improbable about this? Authorities agree that the queen can lay her weight of eggs in 48 hours, consuming honey in proportion. We have often seen a queen, in an observing-hive, lay six eggs in a minute; this would make 3600 in ten hours, 4320 in 12 hours. Now, as it takes 21 days for an egg to become a bee, if we suppose a possible laying of 3500 eggs the queen needs a number of cells equal to 3500×21 , or 73,500 cells, in addition to the cells needed for the indispensable stores of food, honey, and pollen.

The Langstroth frame measures 142 square inches; and as every square inch contains 55 worker-cells, 27 or 28 on each side, one frame contains about 7800 cells; an eight-frame hive, therefore, has but 62,400 cells, and a ten-frame 78,000. Deducting from this number about 20,000 cells for stores and a little space ahead (for the queen surely can not fill every cell as soon as vacated), we have, to receive the daily laying of eggs, 42,400 cells in the eight-frame, and 58,000 in the ten-frame hive; and this, divided by 21 days, gives us a capacity of but 2000 and 2800 eggs per day. In short, an eight-frame hive can accommodate only a rather inferior queen. Will you need authority for this? We can give you some very near home.

We read in the A B C of Bee Culture (are you acquainted with the author?) under the heading, "Loss of Queen," "If we assume the number of eggs a queen can lay in a day to be 3000, by taking her away a single day we should, in

the course of events, be just that number of bees short right during a yield of honey." Then the lack of room in a ten-frame hive reduces the laying, according to this author, 200 eggs per day, or 4200 during the 21 days; and the famous eight-frame hive reduces the number of workers, in 21 days, just 21,000. Would not this make a fine little swarm? What qualities do you find in the eight-frame that will make up for this loss? Mind, we take the number of only 3000; but what is the loss if the queen is capable of laying 3500 eggs or more per day? As a matter of course, even with these ten-frame hives you will not know what she is capable of doing, and you will ignore your loss altogether. We acknowledge that the author of the work above cited must not have been very sure that the average queen could lay that many eggs, else why should he ever advise any one to change from a ten-frame to an eight-frame hive? And yet when he states the probability of her being able to lay that number, he places himself with only the most conservative authors—Dzierzon, Thos. W. Cowan, and others.

In 1857, Berlepsch counted the eggs laid by a queen in 24 hours, and this number was 3021. Numbers of writers agree that the minimum laying of a good queen, in the busy season, is 2000 eggs per day. With your eight-frame hive you compel them to the minimum rate.

About three or four years ago a bee-keeper wrote, in the German bee-journals, that queens were unable to lay more than 15 or 16 days in succession, and stopped very often for five or six days at a time. The Swiss bee-keepers, who nearly all use large hives, investigated this matter, and unanimously reported that they had been unable to find a trace of any such intermissions. The explanation was easy: The German hives are all small, and the queens fill them very quickly. Their cessation of laying is caused by their being short of room before the hatching of the first-laid eggs.

In very small hives, not only the queen but the bees are dissatisfied, and swarm frequently. Some bee-keepers, who wish to increase the number of their colonies, may like this; but the men who have enough colonies, and want honey, do not relish the swarming so well, for it compels them to watch their hives, and often to leave their occupation to harvest swarms that are often of little value. The increase by natural swarming is less desirable than that by artificial division; for in the latter case the bee-keeper can select his breeders. Natural swarming is, therefore, objectionable in several ways.

You will object here, that you can give room to your bees by piling two or even three hives on top of one another, thus giving the queen all the space needed, and *more*. Aye, "*and more*." In fact, you give them too much space this time, and often too early, when the weather is too cool, or too late, when the crop is very near

at hand. These double hives contain 124,800 cells, while our large hive contains 99,000, or 25,800 less. Many of the cells, unoccupied with brood, will be filled with honey that will have to be extracted from frames containing brood, in many cases. Very often the reduction of such a large hive leaves the colony with too little honey for winter; while with the large brood-chamber we may be sure that we always leave enough, and we dispense with the removal of honey from the brood-combs.

We have ascertained that spring honey makes better winter feed than the darker honey of fall, and we are enabled to leave enough of it in the brood-apartment, without any manipulation, for the winter supply. With shallow supers over a large brood-chamber, we rarely get brood in the upper story, and have no difficulty in removing the bees in using the bee-escape, for the queen is usually where she belongs—in the brood-chamber. The manipulations for extracting are, therefore, much simplified.

The bee-keepers who use small hives have to use the queen-excluder when working for comb honey, because the queen is short of room, and lays wherever she can find space, without regard to the color of the comb, in those beautiful basswood sections which afterward give only a second-grade honey. The queen-excluder increases the expense and the work for the bee-keeper, and the unpleasantness for the bees.

Your double-story eight-frame hive is an unwieldy affair, too large when first doubled, and too small when reduced by half; too high for its width, and with too little room over it for a big crop of honey, unless you tier it up to the skies. With the large brood-chambers, all in one story, our breeding-room is always ready; the amount of honey left over is in proportion to the size of the colony; the breeding is pushed along uninterruptedly during spring, and the surplus capacity is very large, owing to the width of the hive. The most prolific queens are easily ascertained, and may be used as reproducers. As the colonies are all more populous than with small hives, their capacity for storing honey is larger, and their wintering is better insured by their greater strength.

Now, friends, if we have placed the matter before you with too much "assurance," blame but yourselves for it. We did not seek the discussion, but are always ready to take our own part.

Hamilton, Ill.

[I certainly did not intend to throw out a taunt of any kind; but if what may be construed as such has been the means of calling out a valuable article that we otherwise should not have received, I am glad it went in.

Regarding the use of two eight-frames, one on top of the other, versus a ten or twelve frame all in one brood-nest, I must confess I am gradually coming to the opinion, from the testimony so far received, that 16 frames, or the double brood-nest, is too large; that the

twelve-frame* capacity seems to be a maximum. But I am not prepared yet to accept the statement that this size is the best, all things considered, for all bee-keepers, although I am inclined to think it is about right for the Dadants. If, then, we must have a large hive, the weight of testimony seems to be so far in favor of not more than twelve-frame capacity. Now regarding the egg-laying of queens:

On page 138 of our last issue, Mr. Doolittle seems to have almost anticipated an answer to Mr. Dadant's statements. Among other things he says: "With the large hive the bees are quite likely to get the start of the queen, and commence to store honey in the brood-combs before entering the sections at all, and in such a case the bees seem loth to go into the sections." During the poor years of late it has been hard to get even an eight-frame brood-nest so crowded as to force any surplus above. Again, he says: "It is well to remember that all queens are not equally prolific; and while 20 per cent of our queens would keep the brood-chamber of a ten-frame Langstroth hive properly supplied with brood to give the best results in section honey, the other 80 per cent would not be prolific enough to do so; and that, because a queen may lay 6000 eggs daily by using plenty of comb capacity and coaxing, it does not necessarily follow that it is to the best advantage of the apiarist to accommodate or even coax the queen to bring her fullest laying capacity to the front at any time." Further on, he thinks that the queen should be rather above the capacity of the brood-nest than otherwise. From all his past experience he believes that 2400 eggs would be a good maximum average. In the same number, Mr. Boardman thinks it is not so much the *large hive* as the laying capacity of the *queen* that regulates the size of the colony.

My own views are subject to revision, for I can not, in the beginning of things, strike the golden mean. I do not wish to appear to be fickle, and jumping from one thing to another; nor do I desire to stick to one idea year after year, right or wrong, and try to bolster it up by all sorts of arguments. I do not wish to be construed as being strictly an advocate for an eight-frame hive, nor for a ten-frame or twelve-frame. In our catalog for this year we have given our customers the option of any one of the three sizes. We give them, as fairly as possible, the advantages of each size, considering the matter of locality, so that each one may decide for himself. If one is a beginner, and does not know what he wants, we recommend the eight-frame size, because the majority of our customers have elected it in the past; and because, too, when we were making the ten-frame size only, the pressure got to be so great that we not only admitted the eight-frame size on an equal footing, but later on gave it the foremost position.—Ed.]

EXPLANATIONS AND ANSWERS.

MISCONCEPTIONS CORRECTED.

By C. A. Hatch.

One of the perils and disadvantages of writing for the press is in being misunderstood and misrepresented by those who hold opposite opinions. I suppose one of the chief reasons for this is the poverty of written language as compared with spoken. In the written, all the

* A twelve-frame Langstroth has about the same capacity as the Dadant hive.—Ed.]

expression of features, inflection, and gesture are all lost; and what would be very easily understood in the way the speaker intended when standing face to face, becomes a mystery when reduced to the dead level of cold type. He must be a master indeed who can express his opinions and ideas as well with the pen as with the voice.

While I think none have willfully misinterpreted my articles on the eight and ten frame question, many have ascribed ideas and opinions to me that I never held, and that have been furthest from my thoughts while penning the articles; so I shall have to lay the cause to one of two reasons—either my poverty of expression is so great that I have failed to say what I wanted to, or their discernment has been so keen that they have read between the lines things that were never there.

My time is so taken up at present that I can not hunt up each specific case, but must generalize somewhat.

DO I BELIEVE IN AND PRACTICE TIERING UP?

Most assuredly, I do; and yet some seem to think that I advocate only side storage and the "Long-Idea" hive, simply because I think bees will increase faster, and get stronger by the beginning of the honey harvest, if a hive is used large enough to keep the queen laying up to her capacity, without putting another hive over it. After the harvest commences, tier up as high as you like—one, two, or three supers, as the strength of the colony will require. I do not remember of ever having a colony require more than three full-sized hives on top, to give all the room needed, but have had any amount of them that require four hives, in all 34 frames, to accommodate them.

QUEEN GOING DOWN OR UP.

I have never had any trouble from the queen going down after putting another story on, *if the top hive is allowed to get full*; but this filling of the top hive with brood is *always* at the expense of emptying frames in the lower hive, for I never had a queen that would keep *both* hives full of eggs; and if she is crowded down for lack of room above, it is two or three days before she will go, and hence so much lost time at the most critical time, just before the harvest begins. Therefore I'd rather have a hive up to her fullest capacity, and have her doing her best at all times.

E. France asks if I would call a queen that could keep only eight frames full a "boomer." Yes, indeed, I would; but when I say "full," I mean full and *kept* so.

WHERE THE QUEEN SHOULD BE KEPT.

After the honey harvest has commenced, and all has been done to get your force ready for onslaught of field and forest, it is of but small concern of mine where the queen is, or that they have a queen at all. In practice, no attention is paid to that part of the hive—i. e.,

the lower story; the main thing is to keep plenty of empty combs *over* the brood-nest.

THAT BEE-TREE PROBLEM.

The facts as to the condition of the combs and colony living in the tree, as described by Mr. France, are, first, the cavity occupied by them was largest in the middle, and tapered toward each end, being six feet long by $2\frac{1}{2}$ feet in the middle, and all the brood at the lower part, and two feet or more below the entrance. I infer that all the top part of the hollow was filled with honey, although Mr. F. does not say so; but as he says a tubful was taken from the two trees, and only two dishpanfuls from the other, the last must have had a washtubful, less the aforesaid two panfuls; as, of course, there was not much room, if any, for brood except at the lower end of the hive, or just *below* the honey, where I should expect to find it. Now let me answer Mr. F. by asking him a few questions, like any other Yankee. 1. Was not this at the close of or after the honey harvest? and was not the queen crowded down by the honey stored in the combs above? or had not she arranged things for consumption rather than for production? Remember, it is *before* the harvest I have been talking about, not *after*, when instinct teaches the bees to arrange their brood-nest for winter convenience and accessibility of stores. 2. Were the conditions, aside from time of year, the same where there was a continuous comb from top to bottom, and two hives, one over the other, with two strips of wood, and a bee-space varying all the way from $\frac{3}{4}$ down to $\frac{1}{4}$ inch? I do not presume there is one really essential thing that my good friend France would disagree about under like conditions. Our fields vary somewhat, and so require different management to meet those conditions; and this question of management answers many seeming differences of opinions. But this is leading into another field, and I shall have to leave this question for some other, so I can tell how I get along without the disadvantage of lifting my ten-frame hives much, and yet get all their advantages.

Ithaca, Wis., Feb. 11.

[I suppose, friend Hatch, you have myself in mind, as well as Dr. Miller and others who have been on the other side of the fence. I for one had not intended to misconstrue you, but perhaps I did so. In any event, I do not think your position can be misunderstood as above given. In the second place, you have the satisfaction of knowing that you started this discussion, and have brought to your assistance more bee keepers who are ready to support your views, wholly or in part, than you or any of us were aware of.]

I am afraid that some of our readers will not be able to decide this question for themselves. For instance, they will read Mr. Boardman's and Mr. Doolittle's articles in the last issue, and then read your own and Mr. Dadant's article above. All four are men of sterling integrity, and bee-keepers of large experience and ability. Then how shall we get at the truth? Locality seems to me to offer the only

solution; and if we are to follow the advocates of one or the other, we must consider our own locality compared with theirs. Perhaps I ought to say that the Dadants have a much better and more prolonged fall flow of honey than those who advocate a smaller size of hives. With the latter it is not desirable to have a large force of bees after the honey-flow, to be consumers and practically nothing else.—Ed.]

TEN-FRAME HIVES, MORE HONEY AND FEWER SWARMS; EIGHT FRAMES, LESS HONEY AND MORE SWARMS.

My hives are all eight frames but one. I have endeavored to follow carefully in the footsteps of the majority, notwithstanding the fact that my one ten-frame hive did just as well as the eight, and never swarmed, and the fact that my neighbors with ten frames get more honey than I. In fact, for three or four years I have been looking for some big report from eight-frame in *GLEANINGS* and *Review*; but the big reports for some reason all seem to come from the ten-frame hive. I am sure that I have lost money and honey in runaway swarms from my small hives. I am confident that, with ten-frame hives and high shade, I shall have non-swarmed bees, and shall not have to be always anxious about a shortage of honey in the hives. No more small hives for me at present. NEWTON AMERMAN.

Rice Lake, Wis., Feb. 4.

[I thought this would be a good item to put right after the article above; for, indeed, it confirms the position of Mr. Hatch when he had to fight single-handed.—Ed.]

CHAFF VS. DEAD-AIR SPACE.

NOT AN EIGHT OR TEN FRAME HIVE, BUT A COMBINATION OF BOTH.

By C. W. Dayton.

In a back number of *GLEANINGS* I find the assertion that there will be more bees reared in an eight-frame hive because it is warmer. I believe the bees form what is known as an "inside hive." By this is meant that, around the margins of brood, the bees arrange themselves in such solid lines between the combs as to prevent a circulation of air from within or without the cluster, for the purpose of keeping a high temperature there while they allow the rest of the hive to arrange its own temperature; consequently, in cold weather the walls are often coated with frost; and in Southern California, where frosts seldom come, we find the walls and unoccupied combs dripping with moisture. From this it would seem that the ten-frame hive is actually warmer than the eight, as the cluster of bees and brood would be able to locate farther from the outside walls. Even if the cluster was warm enough and near enough to the walls to dispel the moisture or frost it would require warmth to do it, and such warmth would disappear in the operation, and

could not aid in brood-rearing, as where there is no frost to be dispelled.

In Iowa I wintered bees in a room which was constructed entirely within a cellar. There was a beam extending from the outdoor air to the inside room. As the cold increased, the frost began to creep down that beam, inch by inch, until it finally reached the inside room. Then when the weather became warmer the frost retreated up the beam. The farther the inside room was from the outside wall, the more secure from frost. The thermometer said so. Would not this inside room correspond to the inside hive of a colony of bees, and the outer wall represent the outside hive? But the inside hive, of which we speak, is of the same size, whether the outside hive be adapted to eight, ten, or twelve frames. The more frames in the outside hive, the longer beam would there be required between the outside and inside cellar walls. In the large hive there is a wall of wood and a wall of dead air. Will any contend that six inches of chaff packing is no better than two inches of the same material? But it is a mooted question which is warmer—chaff or the space filled with dead air. Where a colony fills the hive, as is likely to be the condition in the eight-frame size, there is the protection of the outer wall only, when, with a hive of greater width, a dead-air space occurs. The more dead air, the more protection. If the whole interior of the brood-chamber were to be kept warm, then the less dead-air space the better. Mr. Langstroth designed to have the winter stores deposited in the rear end of the brood-frames. At that early date it seems to have been known that the long frame was longer than necessary for the accommodation of the brood. It might not be so very bad to have the winter stores in one end of the frames were it not that, a little later on, we *must* have a share of the working force of bees lodged there instead of above in the supers of sections, where they should be. Eight long Langstroth frames have the capacity of sixty-four $4\frac{1}{4} \times 4\frac{1}{4}$ sections. Eight crosswise frames contain 48 sections—a difference of sixteen. These sixteen sections would fill 2% of the crosswise frames. Let the two-thirds of a frame go while we set one of the whole frames on each side of the original eight, and it results in a ten-frame hive with brood in eight combs instead of the old eight-frame hive with brood in only six, and that much exposed at the remote points of the brood-sphere. There might be a comb of pollen also. Since it is admitted that the two outside combs in any hive are not occupied with brood, there would be only four or five brood-combs in the eight-frame hive, while there were six or seven in the ten-frame hive, resulting in more early bees and a more populous hive later on, to send bees into the supers. It would be like a light-weight and a heavy-weight pugilist, both in the same ring; that is, the ten-frame colony

would be the largest—more bees in a larger hive, and a larger super; it would hit just as often, and measurably harder. The eight-frame hive, on account of its hindrance of brood-rearing, defeats its own object—contraction—to get a large force of bees early into the super.

If we admit that ten-frame hives give more honey, then more brood must be produced. I do not believe that more honey will be stored, or more combs be built, simply because there is vacant space; nor will the queen lay more eggs simply because there is a large area of comb; but the work done in the ten-frame hive may exceed that done in eight frames because of inadequacy of the eight; and because eight combs of brood is enough for a colony it does not follow that that number of combs in a hive is sufficient for *all* demands of that colony.

It has been said, that one fact is worth a bushel of theories. Theory tends to improvement: facts stand still. Facts may lead us to settle down upon a ten-frame hive as if it were perfection itself; but theory may devise a hive combining the best features of both the eight and ten frame hives.

If it is proposed to discuss the merits of hives without alteration, then I say that the ten-frame is best to breed up and retain winter stores; but the eight-frame is cheaper, handier, and will send a *given number* of bees into the sections sooner. The retention of winter stores may be preferable to farmers and others who have several irons in the fire, and who would starve the bees were it not left in the hives; but the specialist is expected to look after such things in order to enable him to perform other advantageous manipulations. The eight-frame hive is the farmer's substitute for contraction while he attends to a dairy or fruit-ranch. Said bee-keeper wishes to apply contraction during the honey-flow, but does not want to watch his bees closely during the rest of the year. By his plans he may secure the most profit from a certain amount of labor; but more labor and more profit is what bee-keepers are most in need of. When bee-keepers discuss and adopt hives best suited for farmers they had best consider the advisability of becoming farmers, for they must have missed their calling.

A large amount of honey in a hive causes the colony to build up faster, and become stronger thereby, because there are more combs of honey to be mutilated by frost, moisture, or other consequence, causing honey to be removed and carried to the brood-nest. Again, where there is much honey in the hive, that needed for brood-rearing is brought from the most distant points, and especially where it is liable to be pilfered by robbers. Such manipulation of honey is a constant stimulation. It is not possible for a colony to consume 30 or 40 lbs. of stores in two months' time without being stim-

ulated. Last spring I had colonies which consumed 60 pounds of honey while others survived on 10. In the small hives, where there is only a small quantity of honey, and a comb or two more are put in when the first is all used up, the honey remains entirely within the guard-lines, and there is very little manipulation of honey, and, consequently, no stimulation. Last year the lower hives in my apiary were about half filled with winter stores (I use the crosswise L., ten frames in a hive). Then a super of half-depth frames was put on, which were filled up and capped nicely. For brood-rearing the month of January in my location corresponds to the month of May in Iowa or Illinois. They began to rear brood the fore part of the month, and have taken honey from the ends and corners of those super combs, so that they are not more than half full. Some hives have six combs of brood, flying drones, and young bees by the peck. The larger the size of the frames adopted, and the more in number, the more of this stimulation; especially when the colonies are weak or starting to breed. It is my belief that a brood-nest can not be honey-bound in the spring—only in the fall, when there should be bees reared for wintering. These super combs are the same size as single-tier wide frames; and when it is surplus time I will take out the super combs and put in the wide frames of sections in their stead, so quietly that the bees will hardly dream of what has happened. The combs taken out will be tiered up on colonies which will be run for extracted honey. Habit of clustering in the super is expected to make the bees remain there after the sections are put in. Then I will shut down on the storage of honey in sections soon enough to return the combs to be filled with winter stores. Thus the sections will be all completed. It is my opinion that a better hive might be devised by combining certain principles present in both the ten and eight frame hives. How and what to combine is the question.

Florence, Cal., Feb. 5.

[You say it is a mooted question which is foremost—chaff or the space filled with dead air. Perhaps you do not remember the time when I tried to believe that dead air was just as good, and called for testimony to get at the truth. It came in so thick and fast in favor of chaff, or, rather, filling of some sort, that I think all of us were satisfied that dead air was not nearly as good. Dead air is all right providing you can get it in a space or compartment that is airtight. But this is impracticable; therefore, to prevent the rapid circulation, and the air escaping, it seems necessary to have obstructions in the way of filling, and thus prevent the too rapid escape of the warm air next to the bees.]

You say the eight-frame will send a given number of bees into the sections sooner. You are probably right; but would not six frames send them there sooner yet? By the way, what has become of the idea of contraction, that we do not hear of it nowadays? There was a time when it was all the rage.—ED.]

RAMBLE 127.

GAS FOR THE BEE-PAPERS.

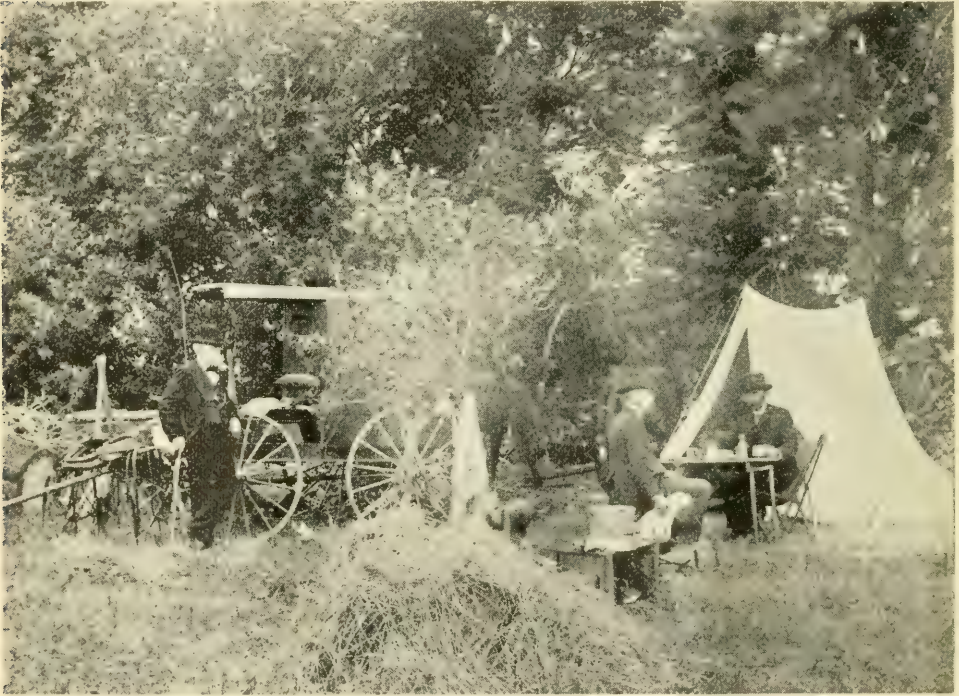
By Rambler.

Mr. Pryal, having the Rambler upon his hands, felt it his duty to ramble me in various directions around the cities. Near Mr. Pryal's were many beautiful residences, and ample grounds laid out in a paradisaical sort of way. The owners were men of wealth, millionaires; here a grotto of rockwork covered with ferns and flowers, and running water, a beautiful plaything costing only \$3000; there a copper affair made in imitation of half of an immense

time ago; and though he is now out of the business, residing with a daughter here in Oakland, he still retains so much interest as to be a subscriber to GLEANINGS.

Our call was of such a pleasant nature that Mr. N. returned it the next day, and sojourned in our camp for awhile. Mr. Pryal, with camera in hand, gave us a shot while Mr. Wilder and I were enjoying our noonday meal, and a very good photograph of Mr. Norton, leaning against our wagon, is shown.

Immediately after dinner we all started for San Francisco, to make a call upon Mr. Harry L. Jones, a brother bee-keeper. On the way



CAMP ON TEMESCAL CREEK. NEAR PRYAL'S.

sea-shell; the cost of this plaything was \$2000. Across the way is an estate formerly owned by J. Ross Browne, who, when in this life, was a genial writer and traveler. The residence and grounds are fitted up in oriental style, or like a Chinese pagoda. There are quite a number of bee-keepers in a small way around the cities of Oakland and San Francisco, but not much attention is given to the industry as a business.

Our first call was upon Major P. L. Norton, not only a veteran bee-keeper, but a veteran of the war, as will be seen by the handle to his name. Mr. N. is from Lanesboro, Pa., where himself and son were successful apiarists. Mr. N. imbibed the love of the bee in boyhood, and has never lost it. He invented a self-spacing frame that was illustrated in GLEANINGS some

across the bay Mr. P. informed me that Mr. Jones, besides being interested in bees, was a gas collector. Now, imponderable substances, such as electricity, etc., were always a mystery to me, and I said to Bro. Pryal, "What on earth does he do with the gas when he collects it?" "Well," says Mr. P., "this gas business is a very deep question. Ask Mr. Jones about it; he will give you full information."

Mr. Jones lived then away out near the Golden Gate Park; and after we left the cable car we had quite a climb up one of those steep streets for which the city is noted. The ocean breeze comes up here howling from the Golden Gate, and loose things go flying through the air; so the San Franciscans, when they speak of their bracing climate, mean much—its brace

against the wind; and that is not all of it: the evenings are so cool, even in August, that when we were pressing the streets with our feet an overcoat was not an uncomfortable piece of clothing to wear.

We found the Jones residence, and I could not make much of a demonstration over his condition. I had to be decorous, you know. Mr. Jones is a benedict. The chains, however, seem to be worn lightly upon his genial nature. The chief attraction in the neatly furnished room was two bright children—a pretty little girl and a bright-eyed curly-headed boy. The latter lay upon a rug, kicking up his heels in childish glee, and showing to good advantage his first pair of trousers. I could well see that Mr. Jones was proud of his benedict condition, and, of course, I would say nothing to mar his pleasures of married life, and to make him wish himself a roving bachelor.

Mr. Jones has 22 colonies located within a little grove of gum-trees. Every bee-keeper knows that a high bracing wind has a very bracing effect upon his bees; it puts them in a valorous mood. Owing to the amount of bracing climate that the Jones bees were subject to, they were sort of educated up to a high pitch of aggressiveness. Upon our arrival upon the borders of the apiary the picket-line of cross bees commenced operations; and upon a closer approach, if we passed the entrance of a hive, hordes of bees would tumble over each other to get at us. Mr. Jones's smoker did not send out a sufficient volume of smoke, and we all made for the brush with alacrity; and, after peering through the leafy cover of a gum-tree at Mr. Jones over his pet colony, we all decamped. The place was too hot for us. The stings we had received were longer than usual. (Note the fact in favor of a bracing climate.) If I remember right, Mr. J.'s bees were in the Dovetailed hive and Hoffman frames. That sting back of my ear made me "disremember." We found it more pleasant to talk bees with Mr. Jones in his house. Mr. J. said, with a smile, that, when the bee-fever struck him, he posted right off and bought a foundation-mill. Of course, that would appeal to almost any sensible man. You can not build properly until you lay the foundation; hence the mill before you own a colony of bees. So Mr. Jones was a happy man as he lugged his foundation-mill home under his arm, and dreamed of grinding out tons of honey for the San Franciscans. Mr. Jones is something of a hobbyist, and has run the camera hobby from A to Z. Several other hobbies have had their turn, but the bee-hobby seems to have come to stay, as it always does when it gets possession of a man.

Mr. Jones has always lived in the city, and expressed himself as heartily sick of sidewalks and rows of brick and mortar, and gas. He longed for the free and open country, and a

bee-ranch, and is taking such active steps in that direction that, ere many weeks, we may expect to hear of him as a full-fledged bee-master.

"Oh!" said I; "Mr. Jones, I understand you are a gas collector. What do you do with that sly imponderable substance?"

"Why, Mr. Rambler, I send it back east. You see, California gas is the best in the world. Just see how our towns have grown under a liberal supply of gas. Ours is the genuine boom gas. Why! there are hundreds of towns in this State that are all gas. You go out on the desert and see little white stakes marking out lots, streets, and avenues. Still, that appears on paper as the beautiful town of Vistablendé—all gas, and too much gas in those cases."

"Well, Mr. Jones, I should like to know who wishes California gas, back east."



"That's a leading question, Rambler; but seeing it's you I will tell you. I send gas to merchants—notably, ready-made clothing, dry-goods, horse-trainers, and a large amount to patent-medicine dealers."

"Well, now, Mr. Jones, do you send any to our friends the bee-keepers back east?"

"Ha! ha! Yes, all of the bee-journals order more or less. There's the Roots and Hutchinson, who order temperately. York's orders are increasing; Alley orders largely, and I have strong hopes in that line for Heddon; he is doing remarkably well for a beginner. Canada bee-keepers would like our gas, but old Hingland has such a grip there that it's hard to let go of the inferior quality. W. F. Clarke gets

a little of our gas occasionally, and improvement in his writings is noticeable. Somnambulist, of the *Progressive*, orders largely; and Hasty, of the *Review*, has a regular monthly bag. But there's Jake Smith. He gives me big orders right along. Why, I believe that fellow is like some of the above towns spoken of—all gas."

"Why," said I, "Mr. Jones, Jake has skipped the country. He does not write for the papers any more."

"Yes, he does; but it's under another name. Let me whisper in your ear" (and we hitched our chairs together in the corner of the room).

"Ha! ha! Is that so? Then Jake Smith is—"

"Sh—! don't mention it; but he is the best customer for gas all the same. Now, Mr. Rambler, while we're on the subject, don't you wish to buy some for your Rambles—tone 'em up a little, you know?"

"No, thank you, Mr. Jones. I never used the imponderable substance, and don't believe I shall use it now. No, sir; no gas in Rambles."

It was quite late when we returned to the Oakland side of the bay; and as we rested in our camp it was sweet dreams of fair women and laughing-eyed children that floated through the dreams of the Rambler.

QUEENS TO FOREIGN COUNTRIES.

SOME OF THE DIFFICULTIES, AND HOW THEY HAVE BEEN OVERCOME.

By G. M. Doolittle.

As will be found in back volumes of *GLEANINGS*, I sent the first queen that ever started in the mails, from this country for Australia or New Zealand, in August, 1884, the same arriving in New Zealand alive, although she died soon after landing, before she could be introduced. My next trial proved a failure, as, at that time, I did not know the running time of the steamers plying between here and that country. The partial success of this first venture, if it might be called a success at all, stimulated me to experiment further along the line of shipping queens to foreign countries, and the next tried was to Scotland, Ireland, and Jamaica, West Indies. About fifty per cent of these went alive, which gave me still more faith in the project of mailing queens long distances. That my faith might be strengthened, and that I might establish something definite in regard to the matter, I began experimenting here at home. I went to work and made cages of different patterns, provisioned them to the best of my knowledge, placed in them bees of all ages, together with a young vigorous queen, and then placed these cages in my shop and elsewhere, coming as near the conditions which they must meet in going long distances as was possible, hoping to prove something definite in the matter. Some were

placed in the loft to the shop, where they would be in a sweltering heat a part of the time—this to represent what they must endure in passing through the torrid zone, while others were left out in the sun, and still others in a fairly comfortable place in the shop. Some of the cages were provisioned with honey, but the most of them with the Good candy. Some were wrapped up closely in a leather bag, to represent what the mail-bag would be to them, while others were not wrapped up at all. Some were tossed about nearly every day, and even thrown across the shop, to represent the throwing of mail-bags off a train while in full motion, while others were handled only once a week. Some cages were thoroughly ventilated, and others allowed very little ventilation. In this way I sacrificed some 15 or 20 queens, and conducted these experiments through several months. The result was, that the average living time of the bees and queens was about 18 days, while no queen in those tried lived over 26 days. The workers would usually begin to die in from 12 to 20 days; and after they commenced to die they went rapidly. After all the workers were dead the queen would soon die; and in no case, during these experiments, did I have a queen live over three days after all of the workers were dead. From these experiments I settled down to the conclusion that it was useless to try to send queens by mail where the trip would take more than 26 days, so did not try to send them a greater distance than 3000 or 4000 miles.

In 1891 I received several orders for queens from Australia, the parties saying, "Try the thing and see how it will turn out." I did so, and the result proved far better than any of my experiments here at home, for I succeeded in getting over there alive about 65 per cent of those sent, none of which were less than 36 days *en route*, this being ten days longer than the best one in the experiment lived. Here is something I can not understand—why bees and queens will live longer while in transit than they will when being experimented upon, and not traveling half a mile, all told.

In one of the cages sent in 1891 I put 35 bees, and every bee in this cage, excepting two, arrived at its destination alive, being 38 days in the cage. This success of 1891 gave me new courage; so when the time came to send queens to Australia in 1892 I started them with quite an assurance of success; but, lo! when the reports were all in I found, instead of 65 per cent alive, or better, as I had hoped, that 35 per cent was the best I could bring the figures to, while the results of 1893 came near discouraging me entirely, as that year 8 per cent was all that reached their destination alive, in spite of all the pains and precaution I took in putting them up. During the spring of 1894 I put considerable thought into the matter, as I had quite a good many orders for queens from New

Zealand, New South Wales, Queensland, Victoria, Tasmania, and Western Australia to fill. One day it came to me in this way:

You know, Doolittle, when you used to give bees candy for winter stores, they would do well on it as long as there was honey in the hive to help them a little; but when the honey was all gone they would often die with plenty of the candy left. Then, again, it has been reported to you that, where the bees had arrived dead, they were almost always daubed with soft and sticky candy, the same becoming too soft to stay in the candy-apartments for some reason or other; and upon thinking these matters over it came to me that I should put into the cage a small piece of comb, the same having a few cells of unsealed honey, and the rest empty cells. The cells of honey would help the bees liquefy the candy were it too hard; and should the candy become too soft, then the bees could lick it up and store it away in the cells instead of their becoming all daubed over with stickiness, which is always sure death to bees; besides, it would make the cage more homelike.

From the above I concluded to put such a piece of comb in every cage, and did so, after first allowing the bees of some hive to lick and clean up all honey set to running in cutting the comb to the desired shape. As the last steamer brought in the last of the reports, I have been looking over the matter to-day and find that the results of the shipments for 1894 prove that I succeeded in landing 70 per cent of the whole sent to foreign countries alive. As this is 5 per cent better than the best ever before recorded, of course I am pleased, and fully believe that the little piece of comb put in had much to do with the success. Those sent to western Australia gave 33 per cent alive, after a journey of 14,000 miles and a confinement of 46 days *en route*. Here it will be noted that a queen—yes, and several worker-bees also—lived 20 days longer than the very longest to live in any of my experiments; and the report says that the cage and bees were clean and nice, with stores for 15 to 20 days longer.

But there is another item which I wish to speak about before I close this already too long article. It is this: None of the parties shipped to knew that I was going to put the piece of comb in the cages, so the thing drew out many remarks and comments in the reports. Among others, two asked why that piece of comb, and whether there was any brood in it when I started it. Others said I put in too many bees (I generally put in from 25 to 30), and advised putting in not over 12 to 15. Putting these two items together, I think I see something else to our benefit in shipping queens to foreign countries in the future: and next season I shall try not only putting in the comb with a little unsealed honey, but make a cage so that I can put in a bit of comb containing from ten to fifteen unhatched bees in it, they being at a stage

of advancement sufficient to show color in their eyes, so they will hatch in two or three days after starting. Something pointing toward the success of this lies in the fact that I sent one queen by express to Australia, putting in about 70 bees, and brood nearly ready to hatch, to the amount of about as many more bees, after hatching. Through some fault of the express company this cage did not catch the outgoing steamer, although started in good time, so it lay over in San Francisco, Cal., till the next steamer, thus making the time 64 days from the time the bees and brood were put in the cage till the queen was taken out at her destination, and, much to the surprise of both myself and the one who ordered them, the queen and about a dozen bees were as lively as crickets when they arrived, with all brood hatched out of the comb.

As many are interested in the shipping of queens to foreign countries, besides myself, I have given in time these things looking toward greater success, so that any who wish can take advantage of them during the coming season.

Borodino, N. Y.

[During the years 1891 and '92 we, like yourself, were much more successful in sending queens to Australia, and we were almost on the point of guaranteeing safe arrival, but we thought we would wait another year. That year, 1893, a very much smaller per cent went through alive, and the next year was but little if any better, if we except the latter part of it. But since using Good candy, made of honey and coarse granulated sugar, we have had much better success. How we succeeded is shown in the Kind Words department in this and the previous issue. We shall try, this spring, a little sealed honey with the Good candy, and shall await the outcome with much expectation. When you make the cages large enough to take in candy, sealed honey, and a little brood and 70 bees, are you not in danger of exceeding the limit prescribed by the postal regulations as to size and weight of cages?—Ed.]

ALFALFA AND SWEET CLOVER.

PAYING CROP IN TEXAS, WITHOUT IRRIGATION.

J. D. Givens.

Five years last October I sowed five acres in alfalfa. I broke the ground in September, with four mules hitched to a sulky-plow; then I harrowed it till the ground was in as fine condition as I could make it. I sowed 30 lbs. of seed to the acre, then harrowed it over once, and got a good stand. I cut three crops of hay the first season, and four every season since, yielding from one to two tons per acre, each cutting, and this without irrigation. As a grazing plant it has no superior. I pasture it from September to March, and it is, without question, the finest hog-pasture in existence.

Cows prefer sweet clover. I have two acres of this adjoining the alfalfa. The gate opens just on the line between the two. I soon noticed the cows turning to the sweet clover. I then noticed very closely; and since that time,

without a single exception, the cows would first turn to the sweet clover. This satisfies me that cows prefer it; but, like alfalfa, it produces the very best of milk and butter. I have tried all the different varieties of clover here. Alfalfa and sweet clover are the only two that will make a success in this part of the country. Alsike, white, and red clover will do well here a seasonable year; but these long dry summers do them up, although I have a little of each left from sowing three years ago; but they will not grow here as well as alfalfa and sweet clover. In 1893, I think half of my honey was from sweet clover. It was of a fine flavor, light in color, and of a very heavy body; this season it did not bloom.

A DEER RECORD FOR RAMBLER AND WILDER TO MATCH.

Say, Rambler, that picture of that doe on page 868, Nov. 15, looks very natural. But here in Texas we carry them on horseback, when the horse does not buck them off. We returned from a deer-hunt a few days since. Our party consisted of six hunters, a negro cook, seven horses, two wagons, and six deerhounds; we killed eleven deer. I killed four—two as fine bucks as I ever saw—a fine doe, and a fawn; brother Billie killed four—one buck that had 18 points on his horns, but rather small and crumpled. Mr. Smith killed two, and Mr. Whittaker one. We had a grand good time. On our hunt in 1893 I did the best shooting I ever knew of personally. A large doe and two yearlings ran by me together. I fired four shots and killed all three. I use a double-barreled shot-gun, so I had to reload and shoot the third one before it got out of range. On a hunt six years ago our party killed 15 deer. I killed seven out of that number. Who of our bee-keeping friends has a better record?

Lisbon, Texas, Dec. 26.

A PLEA FOR FATHER LANGSTROTH.

By Wm. Muth-Rasmussen.

I learn on good authority, that many who have been in the habit of contributing to the Langstroth fund at the beginning of each year have not done so yet; and I have reason for thinking that father Langstroth feels the omission. What is the matter, friends? Are times so hard that you can not keep your pledges? or have you forgotten that father Langstroth is still with us—old, poor, feeble, and in need of friendly aid? I know that the past season has been hard on many; but can we not lop off a little expense here or there, to spare a few dollars? Get out your A B C of Bee Culture; look upon the kind, venerable face of your benefactor, and then think whether you have the heart to omit giving your usual contribution, on which he no doubt depends for part of the necessities and comforts in his old age.

Father Langstroth is now eighty-four years

old. It is not likely that he can remain with us a great while longer. When he is dead and gone, the bee-keepers will perhaps rouse up and put a fine monument on his grave. But what good will that do him? Now is the time when he needs our help. When he is gone, his memory will live in the heart of every true American bee-keeper, with or without any monument to remind us of what he has been to us and what he has done for us. I am sure that the satisfaction of having done a kind act, where it is so fully deserved, will amply repay any one for what he may give.



L. L. LANGSTROTH IN HIS 80TH YEAR.

Send your contributions direct to L. L. Langstroth, Dayton, Ohio, or to the editor of the *American Bee Journal*, George W. York, 56 Fifth Avenue, Chicago, Ill., who will forward the money to him.

Independence, Cal., Feb. 11.

[To save the trouble of hunting up the picture in the A B C we reproduce the cut above from the last photo taken of Langstroth, and in his 80th year. Yes, indeed, I know of quite a number who have forgotten their pledges. We have kept up ours of \$50.00 regularly for 10 years, as I see by our books, and smaller pledges before that. It seems to me that all the back pledges should be made up *now*; and I know that there are some at least who are well able to do it. If Langstroth was robbed of his rights as an inventor in his prime, shall he now be robbed of his just dues in his old age, sick and infirm? I make this appeal without the knowledge, advice, or consent of Mr. Langstroth or his daughter; but I happen to know that the money would not come amiss.—Ed.]

GOING OUT OF THE BEE-BUSINESS.

A VETERAN WHO IS BRIMSTONING HIS BEES.

By T. P. Andrews.

Having been a bee-keeper for the past 25 years, and a reader of *GLEANINGS* from the first number down to the present time, it occurs to me that possibly some of my experiences and conclusions might interest a few of your readers.

For several years I kept about 300 colonies; and while my locality has not been particularly good I have had some fair crops of honey. My heaviest yield occurred in 1889, when I extracted $7\frac{1}{2}$ tons. I have occasionally had a more valuable crop than that, of comb honey, although of less weight. And now in view of the changed conditions in this locality I have come to the conclusion that the chance for profitable honey-producing is about past, and that I shall have to retire from the business.

To particularize a little in regard to changed conditions, I will state that, so far as I know, I have never had a pound of surplus honey from clover or basswood gathered here, and about the same might be said of buckwheat. Our honey comes mainly from Spanish needle, after Aug. 25, with an occasional light yield from heartsease during the two weeks preceding that date. Honey-dew comes along about once in three years, and saves some of the expense of summer feeding.

When I began bee-keeping much of the land was raw prairie, producing a good deal of button-bush which afforded considerable honey in July, though rarely any surplus. Now the prairie sod and the button-bush are little more than a reminiscence, and, of course, are not, in that condition, of much value to the honey-producer. The more thorough cultivation of the lands, and the growing of a large acreage of timothy meadows, have about cleaned out the wild plants that used to keep our bees through the summer, and have made great inroads upon the heartsease and Spanish needle.

Twenty years ago many farmers kept bees, and there was quite a sale for hives. Now the bees have about all disappeared, and hives are not wanted; neither is there any demand for bees. This state of affairs is not limited to a small scope of country, but seems to prevail over several counties at least, in this part of the State.

One of the results of our scant summer pasturage is that our bees are practically non-swarmer, especially in large apiaries. Another result has been that, having little honey in the hives in summer, a drouth or a cold spell has usually made feeding necessary. Of late years summer feeding has been the rule, requiring some seasons as much as five barrels of sugar. Fortunately I have never been obliged to feed for winter, and have failed to get some surplus

but twice in 25 years. My surplus for the past five years has averaged annually only about 15 lbs. per colony of extracted honey. I have reduced, in the past three years, from 300 colonies down to about 140, without much effort on my part until last fall, when I brimstoned 55 of the least valuable of the colonies after extracting the honey. By this arrangement I can realize something from the sale of the honey extracted, and from the emptied combs.

While this may not be regarded by bee-keepers as the most desirable way of retiring from the business, it seems to have some advantages over the more common way of letting the bees starve and the moth eat the combs.

Farina, Ill.

[Certainly this is not "painting the business in too rosy colors," but it seems to me brimstoning is both wasteful and unnecessary. It would be far better to offer bees, hives, fixtures, etc., way down cheap than to resort to the primitive brimstone. "No one to buy," you say. Advertise, and find some one. Friend A., in a private note, says he is going to sell the combs after extracting. But, dear me! it is a sad state of affairs if the bees, hives, honey, and combs together are not worth more than just the honey and combs alone. Say, Bro. A., before you brimstone any more, try an advertisement offering full colonies, including hives, cheap. If the "ad." doesn't pay we will remit the charge. —Ed.]

MANUM IN THE APIARY.

LEATHER ITALIANS; NEW VARIETIES OF POTATOES; THOROUGHbred CHESHIREs, ETC.

By A. E. Manum.

Returning home from one of my out-apiaries just as Dan (my helper) was coming out of the house from his dinner, I saw a strange carriage in the yard, when I asked:

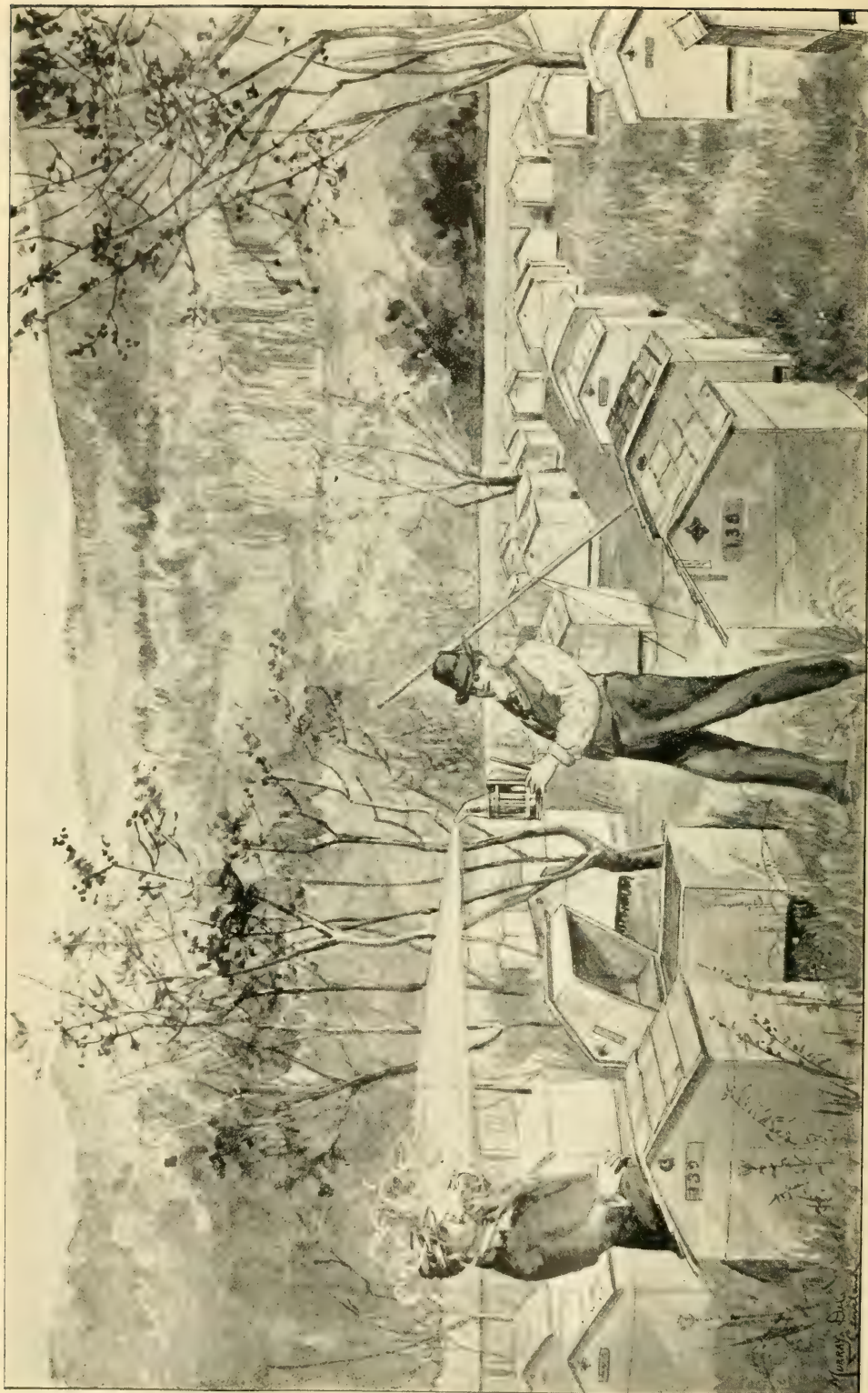
"Dan, whose carriage is that?"

"It belongs to a young man who arrived just as I was sitting down to dinner; and as Fred took care of his horse, I did not learn who he is. He and Fred are now at the table. I think he is a bee-man, judging by the conversation I heard between him and Fred."

"Well, then, Dan, you may take care of my horse if you will, and I will go right in. You may unharness Daisy, as I probably shall not go to another yard to-day if this man has come to see me. . . . Well, well! Walter Larrabee! I am surprised, truly, to see you in Bristol—not only surprised, but greatly delighted. It is not often that I have the pleasure of entertaining the president of the Vermont Beekeepers' Association."

"Thank you, Manum. You see, since we are unable to get you out to the conventions of late, where we can learn what you are doing in the bee-business, I just thought I would take a drive out here and interview you at your home."

"That is right, Walter. Here is where you will find me every day, right at home or at one



"WHEW! MY SAKES! WHAT A SMUDGE IT MAKES!"

of my apiaries. But I have so simplified the work with the bees now that I give my out-apiaries but very little time compared with what I did formerly. From three to six or eight hours per week is all the time I give each out apiary now. I find I can do as much in three hours now as I once could in a whole day—that is, I can accomplish as much.”

“I suppose, Manum, the reason for that is, you have changed your methods somewhat, and do much less needless work.”

“Yes, Walter, I am forced to do as little work as possible, in order to make the rounds. But the fact is, I have simplified the work so much in all of its branches, that, were it not for the other branches that I am carrying on—such as fruit, poultry, swine, and seedling potatoes—I could care for a much larger number of colonies.”

“Yes; I heard you were doing quite a little in small fruit, garden truck, and poultry; but I did not know you were interesting yourself in originating new varieties of potatoes; and, really, I should never have thought of your going into the swine-breeding business. How many have you now, and what breed have you?”

“I have only 40 head now, as a starter, and am breeding thoroughbred Cheshires. I am doing it more for the fertilizer I shall get than the profits from the meat or from sales of breeding-stock. I find that berries require very rich soil to do well, and I therefore thought I would try the experiment of making my own fertilizer rather than buy it. As to the seedling potatoes, I have done quite a bit of that work one time and another; and although I have brought out some very fine varieties, I never pushed any to the front until last spring. The few varieties that I now have are proving so very remarkable that my friends who have tested them advised me to push them. I enjoy such work so much that I make crosses every year; but it is only occasionally that I get a good choice variety of potatoes from the thousands and thousands of seeds I save from the potato balls and plant.”

“Dear me, Manum! it makes my head dizzy to think of all this. How in the world can you do so much with so little help as I see about?”

“Oh! by working *every day*, from daylight until dark. Let me tell you, Walter, when a man is doing such work as he enjoys, he does not mind the long days; in fact, my experience is that sometimes the days are not nearly long enough. Wife says, if I had the power that Joshua had, when I get to experimenting, there would be no sunset. Now, Walter, we will adjourn to the apiary.”

“Yes, I want to see ‘Manum in the apiary,’ and the leather-colored Italian bees.”

“Just wait a moment, Walter, while I get my smoker, and I will open a few hives.”

“Hurrah! you have one of the Crane smokers, I see. How do you like it, Manum?”

“There, there! how do *you* like it, Walter?”

“Whew! my sakes! what a smudge it makes!”

“Yes; when I want lots of smoke, nothing will produce it equal to a Crane smoker. The only fault I find with it is, that it is a little heavy. It is so much larger than my old one that it seems a little awkward to me; but I am getting used to it. When I first got it it would not work at all; hence I did not use it for a long time. Finally I took it all to pieces and fixed the valve, and now it works all right. I think Mr. Root ought to be more careful about sending out imperfect work.”

“Are these bees your leather-colored ones? They look rather dark.”

“Yes; these are pure Italians. This is one of my best colonies, from which I propose to rear queens another year. There is the queen. You see she is large, thick, and stocky. Such a queen will produce large hardy bees, as you see here. Just notice their long broad wings.”

“I don’t see where you raise your queens, Manum. I see no nucleus-boxes around.”

“No, I have not used any this season, as I raise all my queens in and over full colonies. Here you will see how I do it. First, my queen-cells are all built in full colonies, and at the proper time they are cut out and placed in these little queen-cell cages, which I call my queen-nursery. When one hatches she is introduced into one of the apartments here, over a full colony. I take a half-depth brood-chamber, divide it into four apartments, or nuclei, tack a sheet of wire screen on the bottom, and place it over a full colony. Each apartment is given three combs and a few bees, which forms my queen-breeding apartments. In this way I economize heat, thereby getting better queens, which are fertilized younger than in a little box by themselves.

“I am sorry to have you go so soon. I only wish you would stay all night. You will please give my regards to your good father and mother, and to your brother John when you write him.”

Bristol, Vt.

[A few of last year’s pattern of valves went out defective; but now every smoker is inspected by our apiarist before it goes out. Besides, the new form of valve is more perfectly constructed.—ED.]

BEE-PARALYSIS IN FRANCE.

A CRITICAL EXAMINATION OF THE SUBJECT,
CONDUCTED BY

Ph. J. Baldensperger.

We never had any trouble with bee-diseases in the Orient, and I am wholly ignorant of what foul brood looks like, except from accounts read in books or bee-periodicals. Consequently I was never troubled, and so have not examined the matter. Last spring a case of bee-paralysis

presented itself, and I was quite puzzled to make out what it was. I will relate the whole of my experience as I noted it down during nearly three months.

I sold a hive to a gentleman about two miles from my apiary, in July, 1893. The hive was put on his premises, very near the sea. The queen was an Italian, crossed with an Algerine drone. In October, '93, the bees gathered about 30 lbs. of surplus honey from a kind of *Rosaceæ*, so I took about 20 lbs. In January, 1894, I visited this hive, and another of my own which I had also put up very near the sea—but a mile apart. They were both in fine condition. I had no time to look at them till March 4th. Then they were getting on wonderfully. But I noticed at hive No. 1 (the one I had sold) numbers of dead bees in front. I took up the most of them—weighed them, and found about 5000 dead bees. The hive then had nine frames of brood. I could not make out what the trouble was. A cold east wind had blown a few days previous to my visit. The alighting-board was out of place, and the neighboring pine-trees had strewn the ground with yellow pollen, looking like sulphur. I supposed death came from one of the above-named causes; but I asked Mr. G—, the owner, if he had anybody round about him who might have poisoned his bees. His answer was in the negative. March 19th I revisited the hive, to find, to my great astonishment, only six frames of brood and about 3000 dead bees. I watched the bees then very closely, and found some flying in readily, while some dropped in front of the hive or on the alighting-board, with the body as full as a well-filled bee can be; but it simply remained there as if stunned, and died outside the hive after vain efforts to enter. The bees in the hive did not like to receive the weak ones, or those showing signs of the sickness—i. e., an unsteady gait and a swollen body. I could now only say that something was the matter, but not what. I examined all books treating on “bee-diseases;” found the nameless bee-disease, bee-paralysis, and the *Maikrankheit* (May sickness) of the Germans. Witzgall says the disease disappears after a heavy rainfall. I watched this, as it resembled it in many respects, but not in all; namely, it did not come on in May, and did not go after several heavy rainfalls. I wrote to Mr. Thos. W. Cowan, who advised me to treat with naphthol beta, but said, at the same time, that it is never so serious in England as the case reported. Meanwhile a “fixiste” (we so call the old-style bee-keepers in France) reported a case that occurred several years ago, and attributed it to the bees having sucked the sulphate-of-copper solution which they sprinkle on the vines, in search of water. This did not hold good, as the bees in No. 1 had plenty of clean water in the vicinity, and the sprinkling business was not then carried on. We looked for a poisonous plant, and found the *Euphorbia den-*

droïdes, a plant growing north and south of the Mediterranean, and used in Algeria to intoxicate fish; but after several hours in roaming about the mountains I found one single bee, which did not stop long enough to let me examine; besides, this suggestion did not hold good, as the plant also grows near my home apiary and other out-apiaries.

On the 5th of April Mr. G. wrote to me, saying his neighbor sprinkled his rosebushes with the above-named sulphate, and he believed that to be the mischief. Finally, on the 11th of April I had the hive brought to my house, and I put it among several other hives on the house-top, where we have a flat roof. On the same evening I counted 205 dead bees. April 12 I counted 240 dead bees in the evening; April 13, 250 more in the evening; April 14, 240 more in the evening.

It seems to me that the young bees hatch as fast as the old ones die; for since March 19 the six frames of brood have kept going.

April 15 I counted 240 dead bees. April 16, rain all day. Dead bees are still being thrown out and washed away. As often as I go there I could gather about 150 dead bees. The excrements are dark yellow, and the bees void these with great difficulty. Evidently it is a bad case of constipation.

April 17. I am testing Witzgall's sayings—241 dead bees—and all about the neighborhood dead and dying bees of this hive are found. Who can tell how many die daily far away?

April 18. About half a dozen were thrown out last night. Rain again all day, so that I can not examine.

April 19. Fine weather—no dead bees till 8 o'clock. Alas! again 240 by night.

April 20. Seven dead bees this morning—only 97 dead all day. The bees seem to be getting better; took a frame of brood and gave it to hive No. 85.

April 21. This morning 13 dead; 200 during the day; rainy.

April 22. At 9 o'clock this morning, about 50 dead. The bees are remarkably active in getting rid of the dead, and they carry them far away, so I can no more count the real number of dead; still 6 frames of brood.

April 23. Cloudy; 54 dead gathered.

April 24. Cloudy; 125 dead gathered. The frame given to No. 85 has no effect on the bees of that hive. The disease is not contagious—at least, it does not extend to the brood, if this disease is the “mucorine,” described by Witzgall.

April 25. Cloudy; 102 dead bees.

April 26. Inside the hive it looks pitiable, although they keep up six frames of brood, the mother laying continually. The bees now cover only the six frames; and in spite of the daily births, amounting to about 800, the hive has lost nearly 3000 bees, or 250 daily. The births are equivalent to what was lost on the flight. There is no more fall honey left in the hive,

which we suspected also. The bees now seem too weak to keep the hive tidy. They empty their faeces in the hive. I transfer them to a fresh hive—bees, frames, and all. About noon I counted 303 dead bees, inside and outside; from noon to nightfall, only 7, having no more honey. I presume the disease germinated in the food.

April 27. Cold and windy; 35 dead bees.

April 28. Again I change the hive; found inside about 385 dead bees; fed them honey and salt and naphthol, just enough to give the honey a taste; took again 38 dead bees.

April 29. Found 23 dead bees this morning. The bees seem vigorous, the disease going; at noon, 97 dead; evening, 25, thus making 145 dead to-day; fed again naphtholined honey.

April 30. Counted 33 dead to-day.

May 1. Counted 165 dead to-day. The disease is not going at all.

May 2. About 20 dead this morning; is it increasing? 143 by night; exchanged two frames of brood with No. 106, Algerian, to see if the disease is contagious or in the brood.

May 3. Counted 43 dead bees.

May 4. Counted 35 more dead bees to-day.

May 5. Counted 53 dead bees.

May 6. Counted 54 more dead bees.

May 7. Mortality is going on. The mother is laying, and is a beautiful insect, still keeping up her six frames—no progress and no decrease; fed 2 lbs. of salted honey—boiled; counted again 254 dead bees strewn about, not counting the numbers the bees carry away without control; bees hatching in No. 106; no disease spreading; in No. 85, given April 20, the bees are healthy; took away the mother of hive No. 1.

May 8. Counted 240 dead; May 9, 27; May 10, 54; May 11, 63; May 12, 20; May 13, 15. Divided the hive in two; plenty of cells. May 14, counted 10 dead. Bees build a piece of drone comb. May 15, counted 10 dead bees; May 16, 9; May 17, 5; May 18, 4.

The divided colonies seem better than before. Is it because of the division? Bees of both hives are gathering orange-blossom and pollen. The bees given as brood to No. 85 on the 30th of April are at work, without having communicated the disease up to date; bees at work there several days. Hive 106, which received two frames of brood May 2, which has been working since the 16th, show no disease; but the exchanged bees of 106, in the diseased hive, have been at work since the 14th of May, and show signs of the disease—consequently I can say the disease is contagious, but only from adult and field bee to adult and field bee.

I received GLEANINGS for May 1, 1894. Rambler relates, on page 371, very much the same thing I experienced here. Mr. Douse says that there the yellow bees are apt to have the disease. He is right so far. A Palestine colony far away from the diseased one and from the experiment hives has the disease, but to a very

slight extent. Mr. McFarty believes that the drones propagate the disease. I have not tried that. The diseased hive had drones in March, but has lost them all now. They died almost immediately after the division of the hive, on the 13th and following days. I read in GLEANINGS that it is worse than foul brood. The disease is disease is different with us. I tried every way to communicate it to other hives. It is not contagious. The four hives standing a few feet apart have had nothing, and they have been standing side by side for more than a month.

May 19. Young queens hatch in both hives; the bees kill them all but one; no dead bees in either hive.

May 20. About a dozen dead early this morning; about 11 o'clock, rain; afternoon, gathered about 40 dead bees.

May 21. Counted 54 dead bees.

May 22. Counted 25 more dead ones.

May 23. Rain; no control.

May 25. Counted 25 dead bees to-day.

May 28. Counted 30 more dead bees to-day.

May 29, 30; June 1, 2—four days, no time to look after the bees.

June 3. Counted 50 dead bees; June 4, 25; June 5, 25; June 6, 15.

June 7. No more dead, and now the hive is finally rid of disease; took the hive up the Alps with the others. The bees in it could get some honey, but did not build up; still, it is well, and I sent it back to its owner in November. In December I revisited the hive; found it all right, in good condition; three frames of brood, and about 7 lbs. of honey; a population of about 10,000 bees.

The Palestine hive had the same, but much less extensively. I fed it with salt and naphthalined honey. It did not seem to affect it, either for good or bad. Not being at the house, I could not follow hive No. 1 daily; and, besides, the business of counting bees was next to impossible, as the ground round about was uneven, and covered with bush and herbs; but what I did, perhaps saved the hive. I picked all I could see—every diseased bee; for, besides the drowsy appearance and swollen body, the fuzz on the thorax falls away or is pulled off; anyhow, it was quite black, and the sick bee is easily distinguished. I kept picking them out every time I visited the hive, till there were no more left. The hive is again thriving with the others. With the same mother, they too gathered only their winter stores.

In conclusion, this is what I found: It was not the quality of the honey gathered in the fall; it was not exposure toward the sea; for another hive, placed near there, with the same plants to visit, and the same exposure, did not have any trace of disease. It was not want of food, as they always had plenty; the queen has nothing to do with the disease; the disease is confined to adult bees and fielders; they do not

communicate the disease to neighboring hives. The only thing I can suppose likely to have produced the malady is that the hives in question were too well protected against the cold — no airing on top, the sweat causing the mischief, the disease being communicated to only such bees as receive food from diseased bees, or such as pick up the faeces dropped inside the hive by diseased bees, thus acting like cholera, but only on such individual bees as touch the excrements.

I should be very glad to hear from our scientists. This is what I myself believe; but I may be altogether wrong. I have here given the facts picked up daily, and my thoughts thereon.

Nice, France, Jan. 5.

[In many respects the symptoms above given correspond with those of the same disease in this country; but it is a noticeable fact that they seem to vary under different conditions and in different localities. Mr. Baldensperger thinks the queen has nothing to do with it. The majority of testimony so far received seems to show pretty decidedly that she does.—Ed.]

BEE-PARALYSIS HEREDITARY.

A REPLY TO S. A. SHUCK.

By T. S. Ford.

I read Mr. Shuck's article on p. 54, and write to say that I am quite sure he is mistaken in his conclusion that bee-paralysis is not infectious; and I hope that you will adhere to the policy lately pursued by you in GLEANINGS, intended to induce queen-breeders to destroy all infected colonies. It is a step in the right direction. All the writers on this subject that I have noticed, who live in the South, like Mr. Getaz, of Tennessee, agree that it is a very serious disease. You know my reasons for concluding that it is infectious. It spread from a single diseased colony, purchased by me, to every colony that I had except two, in one season, assailing those nearest first, and then it extended from hive to hive as they were arranged in order on the benches; and to put the matter beyond peradventure, when I introduced a queen from one of my hives to a colony of blacks in my brother's apiary, bee-paralysis promptly developed with the appearance of her progeny, and this though she was, to all appearances, perfectly healthy when introduced, and the colony she came from had apparently made a perfect recovery from the disease. Following this, and after the robber-bees had cleaned out this hive, my brother had a well-marked case of the malady among his blacks; and, acting on my suggestion, he promptly got rid of the disease in his apiary by brimstoning the whole colony, since which he has had no more of it.

Mr. Shuck's article was very interesting to me, though I can not agree with his deductions. The truth is, so far as actual knowledge is concerned we are just where Miss Gayton and Mr.

Cheshire left us. We know that, back of the symptoms of the disease, as in the case of cholera, consumption, erysipelas, and other diseases of the human subject, there is a bacillus; but how this germ gets from one bee to another, we don't know. It is a matter for the microscopist. It is true, that the infection does not seem to spread readily from using, in a healthy colony, the combs from an infected one. My own observation in this respect is in unison with those of others as reported, with the exception that, finally, all of my colonies got the disease at last; but whether from infection communicated from the combs, or through diseased bees entering the wrong colony by mistake, or by means of robber-bees, can not be told. Considering the crowded state of the hive, and the close intercourse of its inmates, it is rather strange that the contagion does not sweep away the whole population at once. It is a fact, however, that many hives show a few bees having the first symptoms of the disease, that do not reach the worst stage. In many colonies, bees that are hairless and shiny can be seen with quivering wings, staggering about, that go all through the season without any great mortality. At this stage the guard-bees are still on the lookout for sick individuals, and they pull and haul them about and pluck their hair off until they are at last ejected from the hive and are too weak to return. But there comes a time when the disease becomes epidemic, so to speak, when the guards cease to hustle the sick, and the swollen, bloated bees begin to appear, and the guards have plenty to do to carry out the dead, who are normal as to color, but most of them enormously distended. At this stage the bottom-board is sometimes spotted with the yellow faeces of the sick. In cholera, typhoid fever, and other infectious or contagious maladies, the chief source from which the contagion spreads is the dejections. May it not be true of this also? The colony has invariably perished when this spotted condition of the bottom-board has manifested itself.

Mr. Shuck thinks that sour honey may have something to do with the production of the disease. It may aggravate it, but the real cause is the specific germ that can be derived only from some other infected individual. Harvey's maxim was, *omne vivum ex ovo* (all life is from the egg); and the same principle underlies the propagation of disease-germs. They do not generate spontaneously. Bees have been kept in this county since its first settlement, and there was never a case of bee-paralysis until my unlucky importation. Yet if there is any sour honey now produced in a natural way, it certainly was here before; but it never made bee-paralysis before. I hope you will stand fast in your position, and do what you can to protect the inexperienced from being the victims of some careless queen-breeder who thinks the disease a trifling one.

I have come to think that humidity may have something to do with the fostering of the malady. I have two colonies that came near being exterminated last spring; yet when warm dry weather came on they built up rapidly and became strong enough to lay up stores for winter. With the wet weather we have had of late, the old symptoms have returned, and they are nearly as bad as ever.

We have had a good deal of steady cool weather so far, and there is not a flower to be seen; yet, going among my bees yesterday, Jan. 24th, they were seen bringing in immense loads of what appeared to be pollen of rather peculiar color. The same day a neighbor remarked that my bees were swarming on his cotton-seed meal, and then I recognized the peculiar color as that of cotton-seed meal. They certainly bring in the most enormous loads of it. I wonder if it will serve their purpose as well as pollen. I am going to buy some cotton-seed meal and give it a trial.

There is every indication that we are going to have a fine honey crop this year. There has been so much cold weather that it is almost certain we shall have no bloom killed by frost. It will take a month of warm weather to start the trees to budding, by which time we ought to be measurably safe.

By the way, a singular and most unfortunate thing happened in our neighborhood last fall. An unusual quantity of sugar-cane was raised, and the making of molasses lasted nearly three weeks, during which time the bees were drowned by the peck in the cane juice and in the boiling syrup. Our stocks were greatly reduced in numbers by this occurrence. If I live till next year I intend to close up the entrances with wire cloth during the grinding season.

I am going to try sulphite of soda in syrup, for bee-paralysis. It is said to be a good germicide.

Columbia, Miss., Jan. 25.

[And here is another article that seems to uphold pretty well the position of Mr. Ford.—Ed.]

BEE-PARALYSIS PRIMARILY FROM THE QUEEN, NOT FROM THE FOOD.

I notice what has been written on bee-paralysis by different ones. In 1877, while in Milford, Wis., I bought a queen of an eastern breeder. She was very prolific, and produced fine bees. After her bees were two or three weeks old they would swell up and shake and tremble, and crawl about until they died. In the fall I added a small swarm to the diseased one, and next season she filled her hive with bees, but all the while they kept dropping off with paralysis. I reared six queens from her, and every one of them produced bees with paralysis. I let no drones fly from this queen, so all the young ones were mated with good drones. I sprayed them with salt and water many times; I also sprayed with a mixture of carbolic acid and water, but all to no purpose. All remedies failed. Some-

times there would be a pint of dead bees at each hive. I also noticed that, as the queens grew older, more bees died from each hive; and if I had not added frames of brood from other hives they all would have died. I kept them three years; and as I concluded there was no redemption for them I killed all the bees and queens, and put new swarms on the combs, and I have never seen a sign of it since; therefore I believe the fault lies in the queen, as no paralysis ever appeared from the combs where the bees had been killed. I do not think that sour honey has any thing to do with it. I have also learned from the queen-breeder of whom I got her that his whole apiary was affected with it, and that the drones from such diseased queens would show the disease in their progeny, even when they had been mated to a healthy queen.

Redfield, N. Y., Jan. 18.

J. R. REED.

BEE-PARALYSIS.

A CRITIQUE OF PENDING THEORIES.

By Dr. J. P. H. Brown.

Bee-paralysis seems to be one of those occult diseases whose etiology is beyond the ken of the bee-keeper. I have never, to my knowledge, seen a case of it, but I have read the writings of others upon the subject, with much interest.

In GLEANINGS, p. 54, this year, there is an article on the subject by Mr. S. A. Shuck, who advances the idea that it may be caused by poisonous, sour, or unwholesome honey. Now, Mr. Shuck's opinion may be considered untenable when placed by the side of so high an authority as Frank R. Cheshire, who considers this disease to be caused by a bacillus (*bacillus Gaytoni*, after a Miss Gayton, who first called his attention to it). He says these bacilli are not only in the affected workers, but also in the queen. If such be the case, then it becomes a more terrible disease than foul brood—harder to reach and more difficult to eradicate. Any germicide sufficiently powerful to destroy these bacilli in the workers or queen, by any admixture of food, would also either destroy these insects or impair their future usefulness; hence total destruction of every bee in the hive would be the only infallible remedy.

Cheshire's bacillus theory has given rise to the remedy of changing queens. This course seems to have worked with some satisfaction with a few of the reporters of this disease to the journals, while others have reported that they could see no benefit. Mr. O. O. Poppleton, a very intelligent bee-keeper of long experience, reports in *The Bee-keepers' Review*, p. 267, that he "changed queens, with no result." If Cheshire is correct in his observations upon bee-paralysis (in many other instances he has not been infallible), then, let me ask, what benefit does the infected hive receive from a change of queen? The infected workers are still in the

hive, and they would soon communicate the bacilli to the introduced queen.

Mr. C. W. Dayton, a correspondent of the *Review*, p. 272, from Florence, Cal., observes, when speaking of queens in hives affected, that "in every case I have seen, the queen was an unusually prolific layer." Mr. O. O. Poppleton says, "My nuclei with young perfect queens have suffered much more than old colonies with old queens." Now, how can the idea be entertained that a queen whose ovaries are infested and swarming with *bacillus Gaytoni*—whose vitals are being continually preyed upon by microbes—can be "an unusually prolific layer"? The idea is absurd. It would be just as rational as to suppose that a person infested with the spores of yellow fever, cholera, consumption, etc., would be physically able to perform a full day's work.

Mr. Poppleton says, "It is an exceedingly erratic disease. At times it seems to follow no rules; at other times it works in well-defined limits." Mr. Getaz remarks, in *American Bee Journal*, that "the malady is much worse some years than others, and generally much worse in the spring." Mr. Dayton says, "It usually attacks a colony about the time it gets populous enough for the surplus-receptacles." Mr. T. S. Ford observes, in *Review*, p. 240, that "the disease does no harm except in the spring and during the honey-flow. At that period the bees die in such quantities that I have seen as many as a peck of dead ones in front of a single hive. When warm weather sets in during June it disappears in nearly all the colonies, and only an experienced eye can detect it."

Sifting the various reports of the disease as given in the bee-periodicals, they all show that the symptoms of the disease vary very much during the season—at one time being very prominent; at another, scarcely if at all perceptible. These erratic conditions of the disease are incompatible with the theory of *bacillus Gaytoni*, and we must look elsewhere for a cause.

Mr. Shuck, the gentleman already quoted, says that, from his observations, he concludes "that, in some instances, this disease is the result of a poisoned condition of the honey," and that the poisoning results from incipient fermentation—not that all honey with a slight tendency to ferment is injurious to bees, but that honey in this condition will readily absorb the poisonous effluvia from dead and decaying bees or other decaying matter in the hives. Then, too, I believe that, in many instances, the honey actually becomes sour enough to cause the disease; and I fear that this is the trouble in warm climates such as that of California and the Southern States." These conclusions of Mr. Shuck are worthy of some consideration by the scientific bee-keeper; for, if the symptoms of this disease are carefully studied, they seem to point to some poisoned condition of the food

taken by the bees—it might be either honey or pollen, or both—rather than to the theory of bacillus.

We know that every kind of plant and vegetable, when in certain condition, is liable to be attacked by the spores of fungus. We know that the grape, the peach, the potato, etc., are more subject to rot in some seasons than in others. In favorable atmospheric conditions of a week's duration the fungus may develop, and the disease show itself; while with a change of conditions the disease may check or disappear. In the Report of the Department of Agriculture for 1886 the mycologist of the department observes, when speaking of fungi, that "the fungi which infest our cultivated plants, and not infrequently cause their total destruction, vie with the insect tribes in numbers as well as in the extent of the losses they occasion; and in the transformations they undergo in their development they are equally complex and often more difficult to follow. They are, for the most part, so small, and the metamorphoses they undergo are so obscure, as to call for the greatest amount of patience, and the closest study, in order to obtain any satisfactory knowledge of their natural history; and in spite of all our efforts there will frequently remain many points which must be left to conjecture. That these fungi which make themselves manifest in the plant-diseases known as 'rust,' 'smut,' 'mildew,' 'blight,' etc., are true vegetable parasites; that they are governed by the same laws which control all living organisms; and that they are propagated by specially developed reproductive bodies called spores, are fundamental truths to be kept constantly in mind in studying this subject."

These spores are conveyed by the air, and only await congenial conditions for development. They would be as liable to attack the pollen or nectar secretion as any other part, if the conditions favored, and then be carried by the bee to the hive, in the shape of diseased food, to breed sickness to the inmates.

In many portions of the South there are large plantations of melons that are grown for the northern markets. It is not unusual to find on these grounds hundreds of broken, rotten, and decaying melons, swarming with bees sucking the fermenting juice that is teeming with the spores of fungi. The effects of such rottenness on a hive of bees I can only conjecture. To say that the instinct of the bee is always sufficient to discriminate between what is wholesome for it and what is prejudicial, is all nonsense. They often visit places that are not overly nice. They will often visit poisonous flowers, for instance, the *Gelsemium sempervirens*. In GLEANINGS for Jan. 15, Prof. Cook refers to a tree in California—*Eucalyptus rostrata*—that is very fatal to bees. I admit that the bee will swerve from the dictates of its instincts only from necessity and not from choice.

I have penned the above to elicit thought, and to prompt observation. Our experiment stations should take up the subject: it is a field for the scientist. Scientific observations should be conducted at different points, and notes compared. This is the only satisfactory way to determine the cause of the so-called bee-paralysis. Augusta, Ga.



PUTTING SECTIONS INTO T SUPERS.

A GREAT IMPROVEMENT OVER THE OLD WAY.

By Emma Wilson.

It is about the time when a good many bee-keepers get ready for the year's crop, and a pretty good time to discuss ways and means. I have spent a good deal of time, first and last, in filling sections into T supers. I thought I had become quite adept at it. As I put the foundations into the sections, I piled the finished sections one above the other on a board, until I had put on as many as it would conveniently hold—about a hundred, I think. Then I would set it to one side and commence on a fresh boardful, until I had a good many hundreds piled up in that way. Then I would have to stop, and commence putting them into the supers. I never enjoyed that part of the work very much. Some way it always seemed like so much lost time. Once in a while a boardful would come to grief by being upset all in a heap, and it would require some patience to straighten things out again.

When supering I would put the super on a table of convenient height, put the T tins in place, and, by taking two sections in each hand, could fill one row across the super at a time. I really didn't see how there could be very much improvement on that plan of filling a T super.

One day as I was putting in foundation Dr. Miller stood watching me, and wanted to know why I didn't put the sections directly into the super instead of piling them on a board. I told him I had tried it a good many times, but it was very slow work. The T tins would not stay in place; and even if they did, it took too long to fit each section in place. I could set them down on a board much more rapidly. He replied, "I believe I can fix it so that you can put them into the super just as rapidly as you can set them on the board."

□ Now, I had a good deal of faith in Dr. Miller's ability to make the work very much easier, for he has a genius in that direction; but my faith was not quite strong enough to imagine he could fix any arrangement by which I could place those sections into that T super as rapidly as I could place them on a board. But he

did. If he did not quite revolutionize bee-keeping, as the stock phrase has it, he certainly did, in my estimation, revolutionize filling the T super.

He took a board as wide as the super, and a little longer, and nailed a cleat as long as the width of the board, an inch wide and $\frac{3}{8}$ thick, on one end of the board, to push the super against. Two inches from this cleat he nailed a strip $11\frac{1}{4}$ inches long, $\frac{1}{2}$ inch thick, and $\frac{1}{4}$ wide; $4\frac{1}{4}$ inches from this last strip, measuring from center to center, he nailed another strip the same size, and still another strip of the same size $4\frac{1}{4}$ inches from the last. That made three of these little strips. He nailed three other strips $2\frac{1}{2}$ inches from these strips, measuring from center to center, these last strips being $11\frac{1}{4}$ inches long by $\frac{1}{4}$ inch square. That made the board complete.

I placed this board on a box 20 inches high, at my right hand, one side of the board toward me, with the cleat at the back end. Over this board I placed this super, pushing it tight up against the cleat. As fast as I filled the sections with foundation I set them in the super. I first filled the row of six sections at the back end. It was no harder to set them there than it would be to set them on any flat surface, for you understand that, as yet, there was no T tin in the super. Now I put in the first T tin, slipping it under the whole row of sections at a clip, and do it more easily and quickly than I could have done if there had been no sections there. The sections being raised $\frac{1}{4}$ inch gave plenty of room to slip the T tin under. Now I put in the second row of sections and the second T tin, then the third row of sections and the third T tin, and, by crowding the T tin up tight, it gave me plenty of room for the fourth row of sections. When I lifted the super the sections all settled down in their places.

I can not imagine how sections could be put in more easily into any kind of super.

Marengo, Ill., Feb. 11.

WINTER IN FLORIDA.

JACK FROST AMONG THE ORANGE-TREES.

By Mrs. L. Harrison.

Mr. Editor:—"The sunny Southland, with its sweet warm air and land of flowers," has been a misnomer during this winter. We have just passed through a severe cold storm, accompanied with snow and sleet. As I sit by the table writing, and look through the windows upon the piny woods, a beautiful vision greets my eye. The tall pines, with their green branches, are decorated more beautifully than any Christmas-trees in festive halls. Their proud heads, crowned with sparkling diamonds and clear transparent prisms, are a thing of beauty, to be enjoyed once in a lifetime. There

a great white sheet of snow is loosened, and slides gracefully to the ground; yonder, a great green limb is broken from the tree by its great weight of snow and ice, and comes down to the ground with a crash.

In the early twilight of the night of Feb. 14, the large feathery flakes of snow began to descend, and fell upon the people gathering at a hall to celebrate the festival of St. Valentine. The snow was a great novelty to the young people, born and reared here, for they had never seen before more than a few flakes that melted as they fell. It continued to fall until it was three inches deep, and balls of the beautiful snow were brought into the hall, and were a source of much fun and merriment. Tiny balls were tossed at each other, in great good humor and pleasantry.

This is the third time during the winter, when there was freezing during several nights, and all winter gardens were destroyed. A few days previous to this last storm I was delighted in watching a very large colony, sailing in with heavy loads of light lemon-colored pollen, gathered from the tyty. The sweet-scented bloom of the tyty thickets yields much white honey. Many colonies have died of starvation in this locality, and more will probably follow, as this last freeze will cut off the bloom for some days.

St. Andrews Bay, Fla., Feb. 15.



BEES MOVING IN THE CLUSTER.

Question.—A neighbor tells me that the bees during winter are continually moving from the outside to the inside of the cluster, that they may have access to their honey. Is such the case?

Answer.—This story of your neighbor is one that has been told a great many times, and is based on the very reasonable supposition that each individual bee must help itself to honey directly from the cells containing the same. But, reasonable as it may appear, I am led to believe that the story has no foundation in fact. I have just been in the bee-cellar to see if I could see anything of the kind going on, and I have to report that I do not. Some of the colonies have bees hanging below the frames to the amount of one-fourth of a good-sized swarm, at least; and if such changing for honey was going on as has been supposed, certainly now and then a bee would be crawling in after honey, especially as the lowest bees would have to travel some five or six inches up through or over the cluster, to get where the honey is. But I see nothing save a big cluster of nearly or quite motionless bees, hanging and overlapping each other—each one, or nearly so,

having its head under the body of some other bee. Of course, it is impossible to see or know just exactly what is going on inside of the cluster of bees during winter; but I had always supposed, and so believe now, that bees give honey to one another; that is, the bees which are near the honey give to those under them, and these to those next further away, and so on till the last bee is reached, and the very bottom outside of the cluster. Bees are continually passing honey around during the summer, and why should they not do the same thing in winter, when it is more to their interest to do so than in summer, when all can go about as much as they please? I am aware that these things are of minor importance; but I have always believed that it is better to be informed on all the minutiae of bee-keeping than to pass any thing by as non-essential, as such a course allows us to easily drop some important point which would otherwise be brought to light.

REMOVING POLLEN FROM COMBS.

Question.—Having some combs stored away, left from queenless colonies last summer, which are pretty well filled with pollen, I should like to know how I can remove the same before I give the combs to the bees. Will you please tell us in your department in GLEANINGS how it can be done?

Answer.—Most assuredly I will tell you; for, did I have those combs, I should consider them worth almost if not quite as much as though they were filled with honey. The very best way of removing such pollen is to insert one of those combs of pollen in each hive having a prosperous colony of bees in it, in the spring; and if you have enough of those combs to go around you can consider yourself lucky. They should be put into the hive next to one of the outside frames of brood, and the work should be done in early spring on some warm day, before the bees procure pollen from the fields. This will save you all necessity of feeding your bees rye or wheat flour, or corn or oatmeal, and will be of more advantage to the bees, as it will give the pollen right where they wish it, and save the loss of bees which usually occurs from their going out in cool windy weather in search of pollen. It has been recommended scores of times that we feed our bees flour or meal in the spring, to stimulate brood-rearing; but after years of experience along this line I have become satisfied that such procedure is a waste of time and material, where the bees have pollen in the hive, and causes a loss of old bees to a greater extent than that gained in young ones. Thus you will see that these combs are very valuable for early brood-rearing, before pollen is plentiful in the fields. If you are so situated that your bees can secure pollen from the fields as soon as they can fly in the spring, so that you can not use the combs to advantage as above given, the next best thing to do is to

give one of them to each new swarm when hived. In this way the swarm is spared the pains of searching for pollen, and can devote all its energies to gathering honey; and in a few days you will find your pollen all turned into brood, if you open the hive and look. But should you not desire to use either of these plans, then I would either soak the combs in tepid water for a week till the pollen in the cells became soft so it could be thrown out with the extractor, or I would cut the combs out of the frames, melt them up, and fill the frames with comb foundation. Should you do this last you will have to render the wax from these pollenized combs by the hot-water process, or you will not get enough wax to pay you for your trouble, as the pollen in the combs will absorb all the wax, or nearly so, if they are melted in the solar wax-extractor.

MOLDY BROOD-COMBS.

Question.—I fear, by the appearances of things, that I shall have some moldy combs in the spring, as my cellar is very damp, and I can smell the moldy combs already. What will be best to do with them in the spring, should any be very moldy?

Answer.—We will hope for the best, thinking that your fears may prove unfounded. But should the combs come out moldy, probably not more than one out of four or five will be very bad. Those which have but little mold on them can be left on the hives, where they will soon dry out, and the bees care for them so they will do no harm. If any are from one-third to covered all over with mold, it is well to take them from the hive and hang them in some dry airy room till they are thoroughly dried out and needed by the bees. Don't attempt giving them to the bees while they are all wet and slimy, for nothing seems to so discourage a colony of bees as nasty, wet, moldy combs. When they get all dry, and your bees are needing more combs, take them down, and, with a rather stiff brush-broom, made from broom corn, brush them off thoroughly, but not hard enough to break the cells, when you can put them into the colonies one at a time, and the bees will clean them up so nice that, should you look for them two days after, you could not tell which they were unless you marked the place where you put them. It is best not to give any colony more than one at once, unless the colony is a very strong one. In two or three days give another, and so on till you have them all in the hive. I never yet saw a comb so badly moldy but that the bees would make it as good as ever, if the above plan was followed. Some say, melt up such moldy combs; but so far as I have tried they give very little wax when melted by any process, and none at all when melted in the solar wax-extractor, as the fiber of the mold absorbs what little wax remains.



FISH-KEGS THE BEST PACKAGE FOR EXTRACTED HONEY, AND WHY.

In your last issue of GLEANINGS, page 129, I noticed a controversy concerning the best and most practical package to put extracted honey in. If the parties had to transfer a hundred barrels into 150-pound kegs to fill orders that could not use barrels, or if they did, at a much reduced price, I think they would agree with us that the best all-around package to sell extracted honey in, in quantity, is the 150-pound pine fish-keg, costing only about 30 cents, making it the cheapest package; and, holding only about 150 to 160 lbs., it is within the reach and requirements of the small retail dealer who has not the money, facilities, nor room for handling the large barrels; and a great portion, especially of the dark and buckwheat honey, is sold to the small retail Polish Jew dealers who dispense it in small portions to their customers, who use it largely to make an intoxicating drink.

The coldest day of last week we received an order for fifty 150-lb. kegs of extracted honey, and we had to transfer it from molasses-barrels into these kegs, or lose the order. It was no easy job, as, of course, we had to do it without heating it in any way, which we have a way of doing quite rapidly, but it necessitates extra cost of kegs, some waste, and requires a lot of patience.

H. R. WRIGHT.

Albany, N. Y., Feb. 18.

[I knew your market preferred the kegs; but in other localities the barrels seem to be none too large. I sincerely hope that the demand for honey to be converted into mead or hydromel will not increase.—ED.]

THE SWEET-CLOVER PLANT; IMPORTANT TO TANNERS.

It may surprise many to learn that the sweet-clover plant is of immense value to tanners of leather. A practical tanner, an expert in his profession, assures me that the fraternity can richly afford to pay 10 cts. per lb., or \$200 per ton, for the sweet-clover plant when properly prepared for their use. A number of years ago this tanner offered me about 5 cts. per pound for the plant if I would supply him with it, and prepare it as per his instructions; but at that time I did not care to bother with the matter. There may be some practical tanners or some who may know more or less about tanning the skins of animals, among your readers. If so, and if they should wish to know how to use the sweet-clover plant, as indicated, perhaps I can supply the information. The leather thus made is said to be of superior quality—in fact, when made with japonica and sweet clover, it is equal to that which is

commonly produced from the best quality of oak-bark.

M. M. BALDRIDGE.

St. Charles, Ill.

FINDING BEE-TREES IN WINTER.

It may interest the readers of GLEANINGS to learn how to hunt bees before the snow is off the ground in the spring—especially those who live near large timber. It is well known by all persons conversant with their habits, that, after a long confinement, the bees will improve the first good opportunity to have a general fly. Such an opportunity almost always comes toward spring. There comes one or more very warm days the last of February or first of March, and the bees are out in force, so to speak. Now is the time to look for the bees that either get chilled, snowblind, or, perhaps, from age and debility, fall to the snow and are unable to rise. You may find some, twenty or thirty rods from their tree. But as you get nearer you will find them more plentiful, and immediately under the tree you will find the snow stained, so that it is not a hard matter to locate them.

Bees falling on the soft snow will soon sink by their natural heat, so that it is essential to look, at least before there is any more snow falls; and the sooner after their fly, the better. I found three trees last winter, or spring—the first two by finding the dead bees as above stated, and the third by seeing them flying on a warm day, although the snow was a foot or more deep in the woods. The first one found was a basswood, the second a butternut, and the third a large hard maple. I am satisfied that bees have but little choice as to what kind of tree they go into. I have found them in nearly all kinds of wood. I now call to mind that I have cut 8 pine bee-trees, five hemlock, three basswood, three maple, one elm, and one butternut. If they go into one kind of timber more than another it is because there is more of that kind within their reach.

Sullivan, Pa., Jan 17.

A. DEWEY.

[It would look as if winter, or the latter part of it, were just the time to find bee-trees. When found they can be marked, and, later, can be taken.—Ed.]

FEEDING BACK—A PROFIT OF 50 PER CENT.

In GLEANINGS for Feb. 15th, friend Taylor gives about the same results that I have reached in feeding back. I have fed to finish up unfinished sections for the last three years, and I agree with him that there is a profit in it of about 50 per cent. Now about the work in feeding back: Come and see me and I will show you how to feed 200 lbs. a day, and not take over an hour's time to prepare the feed and place it where the bees can get it—no daubing, no robbers, and you can tell at a glance every day what colonies are in need of a new supply of extracted honey. Just let me whisper to you, that, during the one year that I kept track of every thing, I made \$5.00 per colony during the

month of August for each colony fed. That year I fed extracted honey to 9 colonies to finish sections, and I spent only about 15 minutes per day feeding. Results, \$45.00 for the month of August. This is nearly \$2.00 per day. Doesn't that pay?

My new bee-house is nearly ready for bees; and just as soon as possible I will get two or three photographs taken, showing the outside and the inside of the building.

Syracuse, N. Y., Feb. 18. F. A. SALISBURY.

[I am not only glad that Mr. Taylor proved himself right in our last issue, but that he has such a good man as Bro. Salisbury to come forward and substantiate his statements, over an independent route. As soon as the photographs are received the engravings will be made, and will appear in due time.—Ed.]

STOPPING LEAKY GUTTERS, ETC.; ALSO SOMETHING ABOUT "SANDPAPERING" GARDENERS AND FLORISTS.

For leaky gutters in greenhouses or cracks in wagon-hubs, mix any good paint and apply with a brush, and have some hot dry sand and pour in, and work it into the crack with the brush. That will dry and not shrink. If the crack is very large it may need two applications.

Sometimes my hands chap or crack. I find a piece of sandpaper will cut off the rough piece of skin, and cut down to where the skin is hard; and then a little glycerine will heal them up quick. I find the sandpaper excellent in reducing corns and bunions on the feet. I think it far superior to cutting them with a knife.

To kindle a fire easily we have a 3-lb. peach-can, with one end out. We put in an inch or so of coal oil, and put in six or eight corncobs point down. We take one of these and lay it in the stove where it can be lighted from the draft, then put in some kindling and wood; light the cob, and you have a fire in short order.

GEO. M. KELLOGG.

Pleasant Hill, Mo., Dec. 16.

Well done, friend Kellogg. Any man who has set glass on the modern plan, with thick putty and dry sand, ought to have known what a grand cement it will be for filling up cracks in any thing exposed to the weather; but I confess it never occurred to me before that gardeners and florists needed sandpapering more than people in general. Why, since you mention it I really believe the thing I have been suffering for for years is a good thorough "sandpapering;" and I rather think it ought to be done every little while. What a beautiful world this would be if all the rough spots and corners of so many queer and curious people were to get a good sandpapering regularly! Yes, we all need it more or less. And, by the way, old friend, making such a trip as I did, and meeting such people as yourself on the way, has (or at least I hope it has) knocked off or smoothed down a good many of the rough points in a naturally vehement disposition. Your corncob idea is a good one; and, by the way, if any of the friends should run short of corncobs, the State of Missouri alone can supply the world, and I shouldn't wonder if they would put in an extra shovelful to make good measure, if you will only mention it.—A. I. R.]



EIGHT extra pages this time.

IN spite of the extremely cold weather, reports so far indicate that bees are wintering well. This is indeed surprising. When we remember that cold winters are followed by early springs, usually, the prospect so far is encouraging.

O. O. POPPLETON, of Potsdam, Fla., writes that "the frost of last week has practically wiped out all the bee-industry on the east coast of Florida for the coming two or three years at least." This is rather discouraging, coming right on the heels of such a magnificent honey season as Florida had last year.

It is with much regret that I learn that Mr. S. I. Freeborn, one of the foremost bee-keepers of Wisconsin, and, I might say, of the United States, died suddenly at his home at Ithaca, aged 62. It seems that his health had been failing for some time, and some three or four weeks ago he contracted a severe cold, which resulted in pneumonia and death. Mr. Freeborn's name was first brought prominently forward before the bee-keeping world through the Bee-keepers' Union. It seems that his bees were declared a nuisance, and an effort was made to get them out of the town; but, as our older readers know, through the efforts of the Union, of which Mr. F. was a member, the case was finally decided in favor of the bees. This was its first victory. Mr. Freeborn was not a quarrelsome man—indeed, the very opposite. He was held in very high esteem, both as a neighbor, father, and a member of the community. His son-in-law is Mr. C. A. Hatch, so well known to our readers.

MIXED JOURNALISM.

THE *American Bee-keeper* has decided to adopt mixed journalism. The size of the paper is doubled, the new matter being of a literary character. The fact seems to be, that, in spite of certain criticisms that seem to break out here and there, the bee-papers that adhere strictly to the subject of bees do not enjoy the circulation of those that have added subjects foreign to bee-keeping. Not a few of our readers take GLEANINGS simply for its religious matter, and others for the gardening department; and from the numerous letters received, it is evident that, in many of the homes of our subscribers, GLEANINGS is the *only* paper taken. One man wrote the other day, saying the times were so hard he was obliged to drop even his church paper which he prized so much; but GLEANINGS he *must* have.

But why should objection be made when we add enough extra pages every year to make up very largely for the matter that is foreign to bee-keeping? During the early part of the year, our journal is enlarged all the way from 8 to 16 pages; indeed, this number has 8 extra pages. Let's see: Last year our volume showed a total aggregate of 968 pages, or an average of 40½ pages per issue, while the regular issue is 36. Some years our volume shows over 1000 pages.

A number of years ago we took a vote of our readers as to whether they would have the extra religious matter or not. The result showed that, of those who voted, there were about 100 in favor, to one the other way. This is a conservative estimate, too, and it is to be presumed that the rest not voting was represented by this proportion. These people who criticise our course in putting in religious matter and garden topics do not seem to be aware of the fact that they are in a very small insignificant minority. If they do not like those subjects they do not need to read them, or even take the journal at all, for there are very excellent bee-papers that confine themselves strictly to bees.

ADULTERATION IN BEESWAX.

BEESWAX, as you will notice by the markets, is steadily going up in price, and we are just about out, although we are expecting more daily—enough to keep going as usual. I said we are about out. We have got some "stuff," more than we wish we had, which we bought for pure beeswax, that is beautiful to look upon; and when we bought it, it seemed to stand all the tests for pure wax. It was analyzed, however, and found to be adulterated largely with paraffine. It is now on our hands, and we do not know what to do with it unless we make the parties who sold it to us take it back or stand damages; for we would under no circumstances use it for foundation. About 500 lbs. of the same wax was sent to M. H. Hunt, direct from the parties above mentioned, and whom we supposed to be reliable, *before* we suspected adulteration; but as he was on his guard he set it to one side, pending further investigation. Another lot was sent to W. A. Selser, of Philadelphia direct, on our order from the same parties; but it was found by him to be impure. Fortunately we had used but very little of this wax ourselves, and that little, fortunately, too, was mixed with a large lot of pure wax. Paraffine or mineral wax is a positive detriment in comb foundation, as we learned years ago. The bees will build it out beautifully, but it has a disagreeable fashion of melting down in the hive. Even foundation from pure beeswax does this bad enough at times, but nothing like the stuff made of paraffine. Mr. Selser is a little fearful that a good deal of the wax on the market is adulterated. That being the case, let foundation-makers be on

their guard. A large part of our wax comes in small lots from bee-keepers direct, and, of course, is all right.

Later.—Since writing the foregoing we have received a letter from Ch. Dadant & Son, from which we make the following extract:

We have received your sample beeswax, and must say that at first sight we should have been "taken in," for it smells and looks like pure beeswax. A careful test, however, by the alcohol and water test showed that it has a lighter specific gravity than average beeswax. We should like to ask you by what sort of analysis you found that it had been adulterated, and also who sold it to you. Such men should be spotted, so every one may beware of them.

We never buy beeswax that has been remelted, for the only time that we ever received such a lot we found it to be very largely adulterated—much more so, in fact, than the sample you sent us.

I will explain that we sent them a sample of the wax, stating that we had found it to be adulterated, and asked their opinion on it. The wax is so skillfully adulterated that very few experts would have doubted its purity, and it is not much wonder that we were "taken in."

We hardly like to give the name of the parties of whom we bought the wax yet, for it is not entirely clear that they were acting in bad faith. They declare that they bought the wax on sample, and sold some to us in the same way; but what we have been trying to find out of them is, who it is they bought of that is adulterating wax so skillfully that even experts are misled. It is presumable that the adulterators will be flooding the markets with these goods unless restrained. All foundation-makers should be on their guard at all events.

The chemist, under the instruction of Mr. Selser, our agent at Philadelphia, and without our knowledge, also analyzed a sample of our foundation—some Selser had left on hand. It was taken from our last year's stock, and, of course, was like all the rest we sent out last year. Well, now, this showed that it varied from 94 to 98 per cent pure. In view of the fact that pure beeswax will contain more or less impurity in the way of dirt, etc., and the further fact that chemical analysis can not be expected to reach down to fine notches, it is very gratifying indeed. Mr. Selser, in commenting on the above analysis, writes: "My estimation of the A. I. Root Co. is higher than ever; for I am satisfied that, if it is possible for you to get pure beeswax you intend to do so."

We are not afraid at any time to have our wax analyzed, and I feel very sure that the Dadants and Mr. Hunt have the same feeling regarding their own wax.

WHAT WE DO AND DO NOT KNOW ABOUT BEE-PARALYSIS.

It occurs to me that the subject of bee-paralysis has been discussed in our own columns as far as it ought to be for the present. Further experiments should be made by some of the ex-

periment stations, by some professor with plenty of money and a good microscope at his disposal. There are a few things that we know about bee-paralysis. We all agree, perhaps, that it kills bees; is virulent in some localities, especially hot climates, and harmless in others, or in colder climates; appears and disappears as it pleases; bees swell up, look greasy, crawl out at the entrance, show a trembling, and die in the grass; the discharge is thin and watery.

Now for the points upon which there is not an entire harmony of opinion: Is it contagious? is it hereditary? is it caused by bad food? can it be cured by the removal of the queen? by administering salted water? can it be cured at all by any known remedy? Answering the two first questions, I am satisfied in my own mind that it is both hereditary and contagious. Certainly, if we accept that view of it, it will be safer for all parties concerned.

It seems to me that our present knowledge of the disease is not sufficient for us to answer the other questions, and for that reason it is just as well to let the subject drop in our columns, for a time, at least, until further developments shall have taken place. While some are doubtless interested in the discussion of the question, a great majority, perhaps, would prefer to read something else.

WHAT HAVE WE LEARNED FROM THE DISCUSSION OF LARGE VERSUS SMALL HIVES?

If our readers are getting tired of this hive discussion, large versus small brood-nests, I wish they would send in their postals, letting us know. On the other hand, if you feel that you are benefited, and would like to see the subject discussed further, let us know that also. GLEANINGS is published to please its *readers* and not its editors or its special correspondents.

Let us briefly recapitulate some things we have learned in the hive discussion up to the present time. 1. There are more bee-keepers using large brood-nests than we were aware of. 2. Many more favor ten-frame hives in preference to the eight-frame than we supposed, although, if we could count the hands of those using the eight-frame hives and those using the ten-frame, I think we should probably find three of the former to one of the latter. 3. It seems probable to me, at least, that some are using too small brood-nests, say of eight-frame size, when they might possibly get better results with ten and twelve frame sizes. 4. In colder climates, especially where there is one main honey-flow in June and July, with very little fall-flow, the eight-frame size seems to be used most. In warmer localities, in many portions in the South, in Cuba, where the seasons are prolonged, and where there are months when the bees can gather honey, instead of weeks, as it is with us up here in the North, a large brood-nest of ten, twelve, and sixteen frame capacity seems to have the preference.

5. Instead of bee-keepers running from ten down to eight, as formerly, the tendency now seems to be from the small size to the large. 6. The double eight-frame hive of 16 frames is too large since 12 frames seem to afford the maximum capacity for most localities. 7. Supply-dealers (pity the poor fellows) will probably do a lot of growling, because it will be a nuisance to keep so many *sizes* of hives in stock, (to say nothing of styles), each size necessitating special covers, special supers, special bottom-bars, and special honey-boards. How nice it would be, dear brother supply-dealers (let us draw nigh and weep) if every bee-keeper could use one size of hive, one kind of frame, one kind of every thing. But, no. There are too many notions that are at variance—too many localities with different resources; too many things in general, to make us all think and believe alike.

THAT BICYCLE-RIDE FROM TOLEDO TO MEDINA
—HOW IT WAS DONE.

THE following is an editorial that appeared in the *American Bee-keeper* and will explain itself:

When we read of the long runs made by the Roots, A. I. and Ernest, on their wheels we almost turn green with envy. Such muscled, such endurance, are almost phenomenal—at least, so it seems to the writer when he reads in January 15th GLEANINGS where Ernest scored 109 miles in 9 hours, and the writer is a "century rider" too—in fact, the captain of a "century club;" but he doesn't take 109-mile spins in 9 hours for fun *very often*. Say, Ernest, did you measure that run with a cyclometer, or trust to the word of a "native"? or did you have a 30-inch cyclometer on a 28-inch wheel? Honest, now.

I did not suppose that I had made an extraordinary ride, or I would have mentioned some of the circumstances under which it was made. The lowest road record for 100 miles is something over five hours, I believe; and for the track for the same distance, considerably lower than that. It is, if I am not mistaken, quite a common thing for good average riders to make a century on good roads in eight hours, and yet my time was a trifle over this.

Bro. Merrill lives in quite a hilly State, and writes from that standpoint. The road from here to Toledo is practically a dead level, for it is not a great way, as you will see by looking at the map, from Lake Erie. There are but few hills, and they do not amount to much. Besides, about 30 miles of the road is macadamized; and along the whole distance the road is kept in fairly good order. Now, then, if Bro. Merrill will turn to a good reliable map of Ohio, he will find that a *direct bee-line* from West Toledo to Medina is about 93 miles—one map making it 91 and another 96. But it was impossible to take a road as direct as that. My route was through Genoa, Fremont, Clyde, Bellevue, Wellington, to Medina. Striking a bee-line from Toledo to Monroeville, and from Monroeville

to Medina, the distance measured by the map before me—not a railroad map, but one of Rand & McNally's—makes a total distance of 100 miles. But if you will trace the different towns that I went through, you will see that I had to vary from these two lines quite a little. And still more: There are quite a number of right angles that I had to make—due east and then due south, that, of course, would not show on an ordinary map. You will see, therefore, that the distance, 110 miles, is not far from right. But I did not get those figures from the map, but from the guide-boards, and we have them in Ohio at every corner. These made the distance a trifle over 110 miles. As to time, I carried a watch with me the whole distance, that never failed me, and the time according to it was 9 hours, not including stops for three meals of about one-half hour each. I have been over a large part of this road a good many times, and I do not think I have made any mistake. Indeed, I have made a far better record than that on a part of the route, but I will not tell it here for fear you will call it a fish-story.

At the age of 12 years I began riding the old-fashioned velocipede—a front driver. Later on, I rode the "good old ordinary;" and when the day of the safety came, like the rest I rode that. As a natural consequence, my muscles have had a better opportunity for development than those of most riders.

Now, I do not suppose I should be able to keep up with Bro. Merrill and his century company on his rides over his roads. Indeed, while in Wisconsin I tried to make a century inside of ten hours, just as I had done a number of times on Ohio soil; but I found that 40 miles over the hills and over sand was all I wanted to make, and I was "awfully tired" at that.

In all my wanderings on the wheel over the country, I never find any roads that I like better than the hard clay roads within 100 miles of Medina. York State roads, while in many places hard, are too hilly. Wisconsin roads are good in some places, but they are very apt to be sandy or hilly. The Illinois roads are pretty good; but in the western part of the State they are bad. The Indiana roads are good, comparing favorably with those of Ohio.

THE BLIZZARD IN TEXAS.

In a private letter dated Feb. 20, Mr. F. A. Lockhart informs us that they have just passed through the worst blizzard that was ever experienced in that part of Texas—the southern part. The mercury ranged there from 2 to 16 above zero, between the 8th and 14th. Many birds perished in the storm. The unusual sight of snow six inches deep on the level was witnessed, and in places it was drifted ten feet. Mrs. Atchley carried her best breeding colonies into the house, and thus her loss will be light. It was part and parcel of a storm which will become historical.



THE OYSTER INDUSTRY ALONG THE COAST.

Oysters are very plentiful all along, and a description here of the way they are handled will perhaps answer for any, especially the way they are handled in small places.

A little building stands out in the river, on piles. A woman and her children seem to have charge. The boys go out in boats, and pull up the oysters with a pair of long-handled tongs, something like two steel garden-rakes riveted together, after the manner of a blacksmith's tongs. The rakes are spread open, dropped to the bottom of the river, and the handles pulled together as the oysters are lifted into the boat. The boys run the boat up to the side of the little building, and a smaller boy takes a hammer and breaks the cluster of shells apart. The mother then pries open the oyster, empties the contents into a large tin can; and a pretty little miss with her wheel (a regular two-wheeled bicycle) then takes the oysters all over town in a little tin rail. Like the ice manufactured here, they are gathered and carried around to customers as fast as wanted. The day's work consists in supplying the demand. Dr. Oren tells me oysters grow only where fresh and salt water mingle. Where streams of fresh water run into the ocean, oysters are found along the shores. They are good only in the winter time. They spawn along in the spring, the spawn floating on the water and catching fast to sand, stones, etc., as the tide comes in and goes out.

Oysters are large enough to eat when about one year old. If you want great big ones, however, you must wait until they are two years old or more. I have heard people say the oysters are finer up farther north; but I certainly never found any more agreeable to my taste than what we have here in Florida. I could not help being impressed with the fact that this wonderful—this *tremendous* supply of luscious and nourishing food—is a special providence, or, as I have loved to term it, only *another* one of God's gifts. The great mounds of empty shells seem to attest that oysters have been a favorite food of mankind away back in the earlier ages.

In many places along the seashore there is a hard sandy beach sloping gently toward the water, but otherwise as flat and level as a floor, and almost as hard. It seems almost incredible that the receding waves should leave the wet sand so compact that a carriage-wheel scarcely leaves an imprint. Yet such is true. Saturday, Jan. 26, I took my first extensive wheel-ride. I made the distance from Daytona to Ormond, 6 miles, in 25 minutes. Perhaps I have mentioned that, for a month or more, I have been suffering from a cough and frequent chills, and I had begun to be almost afraid that even Florida wasn't going to drive them away; but when I got to riding my wheel at a good speed, with my mouth wide open, taking in the salt sea air, it seemed as if the chills and bronchial trouble melted away like frost before the sun. When one undertakes to leave the wet sand and get up on main land he encounters dry sand that drifts and piles up exactly like snow in the North. The sand is so exceedingly white and snowlike that one almost unconsciously pulls up his coat collar as he attempts to wade through the drifts. Of course, no wheeling can be done through this shifting sand.

As I passed the long bridge at Daytona I noticed a party of men and women fishing from the bridge. This is such a common thing that I paid no attention to it until somebody pulled out a two or three pound fish. I decided to slack up my wheel and look at the catch. Just then somebody spoke out, "Why, there's A. I. Root on his wheel, as true as I live."

I began wondering who in the world away down here in Florida should speak of me in that way. Just then the cashier of our bank in Medina, O., put out his hand, with a genial exclamation of surprise, for he was the man who had pulled out the big fish. Then another Medina man—in fact, a near neighbor of ours—came forward with his greeting, and I was surrounded by some of our own people.

I forgot to say that, on the seashore, there are many wonderful things. Beautiful shells of variety without end are brought up by almost every receding wave, and occasionally a jelly-fish as big as a tin milk-pan. Now, they call this a *fish*; but imagine a piece of the most transparent glass, the size of a common sauce-dish, and you have exactly one of the smaller jelly-fish. The only thing that makes it look like a plant or animal is that, on one side, there is a series of scallops as regular and perfect as ever seen in any glassware decorations. The animal can not have any organs of nutrition or digestion—at least, so it seems to me, for it is so transparent; yet the keenest eye can see nothing. Right here I am told that the above is not quite true, and a lady says they have sense enough and life enough to *sting*, and that she has been stung herself. On further questioning she says they do not sting unless you break them open. Then they exude an acrid juice. Perhaps some scientific reader can tell us more about this queer phenomenon. On further questioning, those who are acquainted with them say that, if you pick them up, they will pull all to pieces because they are made entirely of soft jelly.

Our next move brought us to the home of J. Y. Detwiler, who lives on the peninsula opposite New Smyrna. Friend Detwiler has a beautiful house, visible for a mile or more in different directions along the coast. As he has been for many years more or less of a bee-keeper, our bee-keeping friends will find his rooms to let quite convenient, both to the seashore and the pretty little town of New Smyrna. Sunday morning we found our way to the Congregational Sunday-school. I think friend Detwiler introduced me to the superintendent as something of a Sunday-school worker, and very soon I was called upon to speak to the school. At the intermission between Sunday-school and preaching service the pastor of the church, finding out who I was, insisted that I should occupy the pulpit in his place. He gave as a reason that quite a number of people were present that day from Hawks Park, the home of W. S. Hart, and that, by previous arrangement, he had agreed to let me talk to the bee-keepers and others who might be present. Here I was in a predicament. I had not thought of any thing of the kind; in fact, our Sunday-school quarterly had been left at some of our previous stopping-places so I had not even given my usual thought and preparation to the subject of the lesson. However, I hastily chose a text and spoke as well as I could. At the close of the meeting the good pastor announced that A. I. Root would speak again briefly at the Christian Endeavor meeting, Sunday evening. As the Endeavor meeting was at seven o'clock, and friend Detwiler lives more than a mile away across the water, we were obliged to go to the meeting in the evening after dark, in a sail-boat, as we had in the morning; and it is

this boat-ride after dark that I want to speak about especially.

The minute we touched the water, friend Detwiler shouted to me to see the phosphorescence. I had heard of such a thing before, but I confess I had never even faintly realized what it was to see a boat literally plowing through liquid fire, throwing up sprays and rolling tiny red-hot (apparently) globules over the water at every splash. When he took the oars it was really a splendid display of fire-works. I dipped my hand down in the water and tossed it about. We soon discovered that the display was much more vivid at some points than others. Friend Detwiler said he thought this was because some portions of the water were warmer than others. When we stepped from the boat to the shore I went to examining the phenomenon along the sandy beach, and exclaimed, "Why, look here! this phosphorescence is clear out of the water, and sparkling away up on the gravel."

He came to my side, but soon began to laugh. "Why, Mr. Root, you are so excited that you are walking right down into the *salt water*, and imagining you are on dry land."

Thus ended a very busy Sabbath day, and to myself, at least, a very happy one. Our readers will find my talk to the Sunday-school embodied, with a little alteration, in a Home Paper for this issue.

Monday morning we moved on to Hawks Park. Perhaps I should remark that I took a hasty ride on my wheel Saturday night down the beach from New Smyrna to Hawks Park, to let the bee-friends know I was in the neighborhood. While there I invited them to come up to New Smyrna to church; and this, perhaps, somewhat accounted for a part of the audience on Sunday. While the greater part of Florida can not be called the best ground for wheeling, I want to say there is nothing in the world, at least so far as I have found, any finer than the shell roads along the river in New Smyrna. I rather prefer it to the ocean beach, because it is just enough up and down, with nice little curves to vary the monotony. I had to hurry up some on account of the coming darkness on that Saturday night; and swinging around the curves and going up and down on that shell road with its wonderful tropical scenery and strange sights on every hand was one of the most inspiring and enjoyable rides I ever made anywhere. I had another one over the same route Monday morning, in going to Mr. W. S. Hart's. In passing friend Hart's orange-grove from the road, you get only a glimpse of some sort of building back through the thick growth of forest. But when you open the gate and go inside, there seems to be a pretty good building all unoccupied. A little beyond are the orange-groves. Each grove comprises, say, from one to two acres, and around each is a belt of unbroken forest to shield it from the frosts and cold winds. Each tree is a model of symmetry and vigorous growth, and nowhere in Florida have we seen oranges of such size and symmetrical shape, together with perfect color, as we found here. The secret of it is perfect cultivation of the soil, liberal use of commercial fertilizers such as are found to be best, with thorough spraying to get rid of rust and scab, or any thing that might mar the beauty of the fruit. Friend Hart has for years been prominent in the horticultural work of the State of Florida, and has, perhaps, as perfect knowledge on all matters pertaining to Florida fruit culture as any man in the State. Therefore it is no wonder that his fruit is second to none. In fact, he gets a fancy price for it, for none but fancy fruit goes out with his brand. His orange-packing house

is a model of neatness and convenience, embracing all of the most improved inventions up to the present day. He pays an extra price for better material for boxes than I have ever seen used for the purpose. In fact, when we visited the Congregational church on Sunday I was struck with the wonderful beauty of some panels selected from specimens of Florida pine. When I asked about it I was told the panels were selections from some of the finest boards used for the sides of orange-boxes. The hoops with which the boxes are bound are made by an invention of Mr. Hart's, from long slender stems of palmetto-leaves.

The process of gathering and packing is something like this: The fruit is carefully picked, using ladders and step-ladders for the highest branches. It is placed in a peculiar basket something like the German tub hung over the shoulders, as illustrated in GLEANINGS for 1894, p. 202. The pickers take every thing—good, bad, and indifferent. Then the fruit is poured out into a peculiar orange-box, made so one will pile up over another and keep its place securely, yet with the sides so low that the pickers can not heap the oranges so the box above will mash them. Not an orange is bruised or mashed during the whole process. They are drawn to the packing-house in a wagon, and emptied into a large slatted-bottom tray or vat. This tray swings on pivots so the oranges may be made to roll either side of it. The first-class, gilt-edged fruit, is selected and thrown into a hopper. This hopper, by an ingenious arrangement, sorts the fruit, placing each size by itself, sorting them from 96 to the box down to 250. Each size is then picked up, papered, and packed. Each paper is stamped with friend Hart's brand, and a pretty show-card is put on top. Some scalloped shelf-paper is daintily placed around the edge; then the smooth veneer covers are put in place.

Now, the old-time way is for the packer to put his knee on the cover, bringing it into place, bruising and mashing some of the fruit. Not so here. A pretty piece of mechanism brings the cover gently against the fruit, forcing it down hardest right where it is to be nailed. In fact, the fruit is handled almost like eggs, and the boxes, too, are handled as if the contents were eggs, as far as possible, until they are in the hands of the consumer. Mr. Hart's trade is principally with a class of people who want the prettiest oranges to be had, even if they do have to pay a little more for them. I have taken pains to give these full details, because it is exactly what I find whenever I visit a fruit-grower or even a farmer, who gets gilt-edge prices for his products. A handsome package certainly goes a long way toward getting good prices. Orange-packing establishments, bee-keepers' apiaries, and other like places that are used at only certain periods of the year, are very likely to be found untidy, full of cobwebs, etc. Now, friend Hart may have done some clearing up because he expected me to come and may be make comments in regard to his arrangements. But even if he did, he ought to have much credit for succeeding so well. His whole packing-house and much of its complicated machinery is made of resinous Southern pine; but every piece of wood about the whole place seemed to be not only planed smooth, but sandpapered until every thing looked like glossy hard-wood finish in a nice dwelling-house. The multitude of little conveniences and inventions in the way of short cuts makes one readily believe he has studied to simplify the details, perhaps day and night, for years.

While in the orange-packing house we noticed the following courteous hint to loungers,

and it hits the point so exactly that we copy it, thinking it may be of use to others who have similar places of business:

"Callers are welcome, but I trust they will bear in mind this is no place for long stories, loafing, or gossip."

His honey-house and apiary are a good deal after the same plan. The frames of honey are wheeled up to the upper story of the honey-house, in a cart made for the purpose. After the honey is thrown out it runs by gravity into a sun evaporator, the honey flowing around partitions so as to go slowly zigzag over a large extent of surface, glass sashes being placed over it during the evaporation. Of course, it is placed where it will get the full benefit of the direct rays of the sun. From the evaporator it goes into a large storage-tank from which it can be readily drawn into barrels. Something like sixty barrels, containing twelve or fifteen tons of honey, were stored in the lower story, or honey-cellar, during our visit.

The above is just about half of the whole crop of honey.

As there has been some bungling in the attempt to give the exact amount of honey stored by a single colony placed on scales during the season of 1894, we give the following figures, taken from Mr. Hart's memorandum-book:

May 14.....	57	lbs.	June 16.....	44	lbs.
May 22.....	30	"	June 25.....	50	"
May 27.....	12	"	June 27.....	15	"
May 28.....	42	"	July 6.....	56	"
June 2.....	51½	"	July 16.....	53¼	"
June 11.....	46	"	July 26.....	48¼	"
June 12.....	15	"	Aug. 6.....	14	"
Total.....				554¼	"

By the way, I want to say here that friend Detwiler wants all bee-keepers to test dipping-boards made of Spanish cedar. It can be purchased in our large cities; but you can test it on a small scale by using the cover of a cigar-box. His boards are always made of Spanish cedar. He says it does better work, and lasts longer, than any other kind of wood to be found in the world.

It is quite interesting to go over friend Hart's grounds and around his house, and see the great variety of fruits that may be grown with more or less success in Florida. Here for the first time we saw the wonderful scuppernong grapevine. A single vine, if given trellis enough, with a little training will cover almost a quarter of an acre; and this one vine will often yield hundreds of pounds of fruit.

Mulberries are largely raised in the South, and somebody suggests they can be grown so cheaply that they are valuable for the chickens, keeping them from having a desire to meddle with other more valuable fruits. Guavas also will yield fruit almost every month of the year; and, judging from specimens of canned ones, as large as apples, furnished us at Dr. Oren's, we regard them as a most pleasant and agreeable substitute for apples. Brother Hart says they are the poor man's apples in the South. The bushes grow with wonderful luxuriance on almost any soil, and without any care; in fact, the dryer and poorer and more sandy the soil, the better the guava seems to flourish. The fruit is even now hanging on the bushes; but both bushes and fruit too were used up by the frost. We are told the bushes are killed clear down to the ground; but no one seems to think it matters very much, for they will be up and in full bearing again in an incredibly short space of time. Cuttings for figs are sometimes planted in the spring, and yield a crop of ripe fruit before another spring.

Dr. Hawks, who gave Hawks Park its name, paid us a visit during the evening. He has written a book entitled "The East Coast of Florida," and it contains matters of much in-

terest pertaining to this coast of Florida. The book is the result of his own travels and investigations. He paid me a high compliment in something like the following words: "Mr. Root, you are not aware, perhaps, of the extent of the great industry you are largely instrumental in starting up all over the world, especially through Florida. Your enthusiasm and zeal did much toward developing bee culture, and in advance of what it would have been otherwise, and your A B C book is still doing its work of making the desert bloom and bear tons upon tons of a delicious food product." And this reminds me that friend Hart said I must call upon a young man who is just commencing in the bee-business. We found him poring over the pages of the A B C. His bees had got to robbing, and he was in trouble to know how to stop them. I told him to come along with us, and either friend Hart or myself would fix the robbing business in short meter. I felt sure we could, because the bees were gathering considerable pollen and some honey. Well, several colonies that he supposed were robbing were, in my opinion, only having a play spell. There was robbing, however, at one stand. This stand had the nameless bee-disease, or bee-paralysis, when he purchased it. Somebody had said through GLEANINGS that feeding was a good thing. Now, though the bees had an abundance of sealed stores he put in an additional story and set in a dish of honey, and this dish of honey caused the robbing. To stop it he had kept the bees shut up for three days, so they would not know where their old home was. We let them out, and in ten or fifteen minutes they organized a guard around the entrance, dragged out their dead, and took care of themselves. Friend Hart says he has never had this disease kill a colony in his own apiary. Sometimes it disappears of its own accord, and it almost always does after giving the bees a new queen. By the way, I am told by all the bee-keepers I have met that foul brood has never yet been seen in Florida. If bee-keepers could unite and stamp it out at the outset, if it ever does appear, it will be worth thousands and thousands of dollars to the State.

Our next visit was at E. A. Marsh's. To reach the place I made a trip of eight miles on the wheel, and the most of it through the soft sand. For the first time since my severe cold and hoarseness, contracted about Christmas time, I rode in my shirtsleeves, with vest unbuttoned, and bareheaded. After my trip, while wet with perspiration, I took a bath in the salt water of the Hillsboro River, and did not take a particle of cold; in fact, I knew I shouldn't. The thermometer was up to between 80 and 90°.

Friend Marsh's people have come all the way from Massachusetts, and have lived here about nine years. They put up a temporary dwelling for camping out, and they laughingly said they were "camping out" still, with no desire to go back up North. In one respect, at least, they are a remarkable family. For instance, while there an intelligent, beautiful-looking horse by some hook or crook got into the garden stuff down in the hammock. Friend Marsh stood in the door and called to it away across the lots. The horse came up at once, and part of the way at a very brisk gallop. Now, he did not come because he expected to be fed, for, as soon as the gate was opened, he went straight to the stable where he belonged. Mrs. Marsh said the pigs and chickens would do the same; and by way of a crowning exhibition of what intelligent training will do for the animal kingdom, her daughter, with a bit of cake in her fingers, called some beautifully plumaged blue-jays out of a neighboring tree. They alighted

on her hand, and ate the cake. Afterward Constance did the same thing, thus proving that it was not because it was some one they had become acquainted with. We were told they did this when a woman offered them food, but they hadn't the same faith in *man*kind.

I should right here describe friend Marsh's gardening, but a more extended description of the same thing will be found in our visit to friend Fröscher's.



For flesh and blood hath not revealed it unto thee, but my Father which is in heaven.—MATT. 16: 17.

I have mentioned elsewhere (see page 186) the Sunday-school at New Smyrna. That Sunday morning I discovered our quarterly had been mislaid or lost, and we were too far from any one who had the lesson to find out exactly where it was, before going to the church. As soon as I took my seat in the class I began looking over the lesson hastily; but before I had hardly gotten a glimpse of it the superintendent of the school asked me to give them a little talk in regard to the lesson just before closing. For a time it really seemed as if I couldn't collect my thoughts or find a single point in the whole lesson on which to base any remarks. I have never been in the habit of refusing any such request; and, in fact, quite a number of bee-keeping friends were present, and it would look a little singular for *A. I. Root* to refuse to speak just a few words to them. I commenced praying to myself that God would give me of his Holy Spirit that I might not disappoint the friends who were looking to me, perhaps, for a little portion of the "bread of life," and that I might have wise counsel and encouragement for any who might be fainting by the wayside. For a time it seemed almost as if I should be obliged to ask to be excused. Satan suggested that it was out of my line; that I was out of health; that I was too hoarse to talk, any way, etc. But I held fast to the Bible promises. I had been through similar trials before, and had faith to believe that my petition for help would not remain unanswered. I thought of the text, "If ye, then, being evil, know how to give good gifts unto your children, how much more shall your heavenly Father give the Holy Spirit to them that ask him?"

Just before the lesson closed, and almost as the superintendent began to introduce me, my mind began to center upon the text at the head of this talk, and for the first time in my life the latter part of the 17th verse had a new—a wonderfully new—meaning. All at once I began to comprehend that the plainest evidence any mortal ever had of the truths of the Christian religion was the evidence of the Holy Spirit, the words that God the Father speaks to the heart of each child of his. And this was my message to the people, most of whom I had never seen until that morning. As I stood before them I told them of the Sunday-school away off in Ohio, of the class of boys that gathered every Sunday, to be taught by me. I told them of the old mother who also was always present at that Sunday-school, and of an experience in her life she had told me of again and again. That experience was something like this:

She united with the church when only twelve or fourteen years old; but as there was a good deal of gaiety, going to parties, etc., shortly after, her religion began to seem to her a rath-

er secondary matter, and she drifted away at last, to a certain extent, as many an older Christian has often done. She was at that age undecided as to what she ought to do about going to dances. Her father rather preferred to have her go, and his influence was of a somewhat worldly character. She finally felt so uneasy and unsatisfied that she prayed very earnestly that God's Holy Spirit might guide and direct her, and tell her what she ought to do. She also prayed most earnestly for a plain and clear evidence that she was a child of God, and that the teachings of her Bible were *true*. You will please consider that she was getting considerably under the influence of those who led into skepticism rather than toward a devoted Christian life. She says that her prayer was at once and with *wonderful distinctness* answered. The bright peace and joy that came with the answer was so clear that never *once since*, in a busy life of almost 70 years, has her mind so much as *wavered*. That answer was the secret of the bright clear faith that has shown from her face and every act during all her life. I have never, since I can remember, seen my mother lose her faith. I have seen her on her knees in earnest prayer, and I have heard her voice in prayer for myself and every other member of a family of seven children. The fact that I stand here to-day with a like faith, bright and clear, I owe to that mother's faith and teachings and prayer more than to any thing else in this world.

Jesus tells us, in the words of our text, that flesh and blood did not reveal unto Peter that Christ was the Son of the living God. It wasn't the testimony of friends; it wasn't the teachings of the pastor; but it was God's Holy Spirit, the Father in heaven, who revealed this wonderful truth to Peter.

And now, dear friends, for the personal application. If there is any one whose eyes are resting on these words, and who doubts the divinity of Christ, who feels undecided in regard to the claims of Christianity, the very best evidence that can be given in the *whole wide universe* is the testimony spoken, perhaps not in words, but in some way still plainer—the testimony of the Holy Spirit. Go to God in prayer; go to Him who fashioned us after his own image—the Father who created us and brought us into the world—he who is the beginning and end of all things, and ask *him* to make it plain to you what you ought to do. He will guide you and direct you. He will tell you what no other being can tell, and he will tell you the *truth*. The evidence that every Christian may have, if he has not had it already—the evidence straight from the Holy Spirit to the heart of the inquirer—is the best evidence we can possibly have.

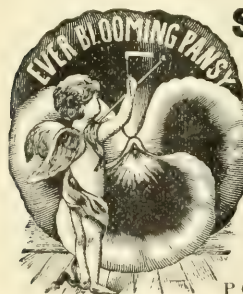
My experience was much like my mother's. I shall never forget the time when I knelt alone by myself and uttered my first prayer—at least, the first prayer since I had arrived at the age of manhood. It was a simple, honest petition for help and guidance. Why, dear friends, I was in so much doubt and uncertainty—in so much *distress* because I was tossed about in the wild sea of doubt—that my first words were, "O God, if there be a God, listen and hear the petitions of thy poor unworthy child." I don't remember the rest of the prayer uttered in the darkness of the night, alone by myself; but I do remember the faith and peace and joy that came upon me all at once—a faith that has never deserted me—no, not for one brief instant. I have been through trial and suffering; I have almost lost consciousness in the delirium of fever; I have been sorely tempted by the evil one at such times of temptation; I have again and again prayed for help, even as a child in

distress calls to a parent; and this same Holy Spirit has again and again spoken peace to my soul.

Another office of the Holy Spirit is to rebuke and reprove and convict. One who prays for the influences of the Holy Spirit must expect to have his shortcomings made plainer to him than they ever were before. He must expect to see sinfulness in the light that God sees it. Sometimes we persist in our stubborn ways until our neighbors and best friends are obliged to remonstrate with us. These friends feel pained at our course, and naturally dread the disagreeable task when it must be done. Very well; if you pray that *God's Holy Spirit* may guide you, it will begin, in time, to tell you of your faults; in other words, the twinges of conscience will come oftener and plainer when you do wrong than ever before.

I may never see you again, friends. These words may be the only ones you will ever hear from my lips; but I do not know any more valuable message I can give you than to tell you to pray often for the guidance of the Holy Spirit, especially when you are in doubt. Then is the time to ask the God who made you, of the truth of the Christian religion. If any one here is ever tempted to doubt that Christ is the Son of God, let him go to the Father and he shall surely have an answer. Of course, I am presuming that this prayer is an honest one; that the one who utters it is ready and willing to do God's will; that he is ready to give up all and every thing for the truth when it shall be made known to him. Do you doubt God's willingness and readiness to give personal assurance to every child of humanity? Read again the words I have once before quoted:

If ye then, being evil, know how to give good gifts unto your children, how much more shall your heavenly Father give the Holy Spirit to them that ask him?—LUKE 11: 13.



SEEDS!

Awarded
World's Columbian
Grand Prize Medal.
ALWAYS FRESH
AND **RELIABLE.**

Send 5 cents to cover postage and by return mail receive package of my New Hybrid Everblooming Pansy Seed, all colors; the finest varieties, known; and my Beautiful Seed and Plant Book of Garden Novelties at lowest prices ever known. Address at once,
H. W. ECKBEE,
Rockford Seed Farm,
P O Box 614, Rockford, Ill.

☞ In responding to this advertisement mention GLEANINGS.

Peach-trees! By mail, 10 for 60 cts.; by freight or express, \$4 per 100. Crosby, Elberta, Stump, and other best varieties.

Japan Plums. Abundance, Burbank, and Satsuma; by mail, 5 for 60 cts.; by freight or express, \$10 per 100. Cedar Grove Farm.

JOHN CADWALLADER, Proprietor,
North Madison, Indiana.

Talmage, Otoe Co., Neb., Dec. 8, 1894.

John Cadwallader.—Dear Sir:—I received your trees Nov. 22 in good order, well packed, and thrifty-looking trees. Thank you for the Satsuma.

Yours respectfully, JAS. RITTER.

Here is a report of one order sent by mail April 7, 1894. It embraced 10 peach trees (5 sorts) and two Abundance plum, the whole cost 90c. Remember I pay the postage and send 10 peach trees for 60c.

Mexico, Mo., Jan. 7, 1895.

John Cadwallader, Dear Sir:—The trees received of you last spring all lived and did well.

I want a few trees next spring. B. BALDWIN.

☞ In responding to this advertisement mention GLEANINGS.

The New Craig Seedling Potato.

For full description of this Potato, see page 959 of this journal for Dec. 15, 1894. Prices: 1 lb. by mail, postpaid, 25 cts.; ½ peck, by freight or express, \$1.00; peck, \$1.75; ½ bushel, \$3.00; bushel, \$5.00; barrel of 11 pecks, \$12.50. The above prices will hold good as long as our stock lasts. All orders by mail will be filled as soon as received. Orders by express will be shipped at once unless ordered otherwise. All orders for potatoes by freight will be filled April 1, or soon after that time, unless directions are given to ship at an earlier date. In this latter case I do not assume responsibility for loss in freezing; but where it is desirable to ship earlier, and customers have bad luck, I expect to help them out so far as I can consistently. In regard to my responsibility I would refer you to A. I. Root. In fact, where it is more convenient you can order potatoes of the A. I. Root Co., instead of sending your orders to me.

GEO. E. CRAIG, Zimmer, Franklin Co., O.

Raspberry Plants For Sale.

Gregg for late; Hilborn for medium; Palmer for early.

These are standard varieties, giving almost universal satisfaction.

They are the kinds to plant for berries.

Price \$1.00 per hundred; \$7.00 per thousand, F. O. B. at Lodi.

W. R. GRANNIS, Lodi, Ohio.

B 4 U Buy Seeds or Plants,

Send for my
Annual Catalog.

It is neatly gotten up; no old stereotyped matter about it; nothing sensational. The Best Varieties truthfully described and honestly priced. A. I. Root says, "I believe I have read every catalog you have put out clear through, and I wish all seedsmen would tell us their experience with different varieties as frankly as you do." True Prizetaker onion seed and plants a specialty. Vegetable and small-fruit plants of all kinds, trees, and supplies for gardeners. Send for free catalog at once, or send 10c for catalog, a pkt. of a new smooth very early tomato, a pkt. of the best new lettuce, a pkt. of true Prizetaker onion, and a pkt. of choice flower seeds, all for 10 cents.

Christian Weckesser, Niagara Falls, N. Y.

Every Farmer

Ought to read the Rural New-Yorker.

(Published weekly.)

It is the business farmer's paper, and a most reliable authority on agricultural and horticultural subjects. Frauds and humbugs fear it. **ONLY \$1 A YEAR.** Send for sample copy to **THE RURAL NEW-YORKER, New York.**

We have made arrangements so that we can send it and GLEANINGS for \$1.75 a year.

Please mention this paper.

Combs for Sale.

1200 good combs in L. frames, 17 $\frac{1}{2}$ x 9 $\frac{1}{2}$ in. Prices, packed for shipment; for combs having more than 20 square inches of drone-cells, \$3.00 per 100. Combs having less than 20 inches of drone-cells, \$5.00. For reasons for selling, see article in this number of GLEANINGS. No foul brood.

T. P. ANDREWS, Farina, Fayette Co., Ill.

SOUTHERN AND EASTERN AGENCY
FOR A. I. ROOT'S BEE-KEEPERS' SUPPLIES
AT A. I. ROOT'S PRICES.

RAWLINGS IMPLEMENT CO.,

Formerly Balto. Farm Implement Co.

Jobbers & Dealers in Farm Implements & Machinery

209 S. Charles St., Baltimore, Md.

23-9eoi

Early Queens By Return Mail.

Choice Tested Italians, vigorous and prolific, \$1.00 each.

These queens were reared in the fall of '94 for our early spring trade, and are guaranteed to give satisfaction.

J. W. K. SHAW & CO.,
Loreauville, Iberia Parish, La.

OTTUMWA BEE-HIVE FACTORY.

Bee-keepers, look to your interests. Every thing in the line of bee-supplies constantly on hand. Price list free. **GREGORY BROS. & SON,**
Ottumwa, Ia. South side.
1-23a

In responding to this advertisement mention GLEANINGS.

Dovetailed Hives.

Sections, Extractors, Smokers, and everything a Bee-keepers wants. **Honest Goods at Close Honest Prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

1895

To my customers and friends: Please remember that W. H. Laws is again headquarters for Italian queens. I breed nothing but large, well-developed queens, either Golden or Leather-colored. My Golden strain is from Doolittle's original one-hundred-dollar queen, sent me after he had reared over 1000 queens from her. For business and beauty, my bees are unexcelled. Price of queens, each, \$1.00; 6 for \$4.50. Tested, \$1.25. Breeders, \$2 to \$3. Address

W. H. LAWS, Lavaca, Seb. Co., Ark.

Golden Queens From Texas.

My queens are bred for business, as well as for beauty and gentleness. Safe arrival and reasonable satisfaction guaranteed. Untested, \$1.00; tested, \$1.50.

Write for price list. 5-16ei

J. D. GIVENS, Lisbon, Texas. Box 3.

500 Barrels Sweet-Potato Seed.

Yellow Jersey, best variety, \$3.00 per barrel. Red Spanish, Red Bermuda, and Jersey Queen, \$4.00 per barrel; 5% discount on 5-barrel lots.

Our stock is fine. Order now and secure a supply at reasonable prices **L. H. MAHAN,**
Box 143, Terre Haute, Ind.

3-7ei

SECTIONS.

\$1.35, \$1.75, \$2.00,
\$2.50, \$3.00 per M.

They are all good, too.

We keep from two to three carloads of supplies in stock, hence can fill orders promptly.

Let me know your wants. '95 catalog ready.

I. J. Stringham, 105 Park Place, N. Y. City.

Giant Bees of India.

I am now ready for orders for the **largest bees on earth**—something new for bee-men. Bees that tear open red clover and other blossoms to get the honey. Half-breed colonies sometimes gather 20 pounds of honey in a day. Young queens, \$3.00 to \$8.00. Orders booked now. Also choice White Wyandotte eggs, \$2.00 per 15.

C. D. HOLT, Murray, Ky.

DON'T MONKEY NOW.

Send for our 36-page catalog free.

Root Co.'s Supplies kept in stock.

We can save you freight. Let us know what you need for the apia-ry. Get our prices.

JNO. NEBEL & SON, High Hill, Mo.



Jas. M. Smith, Perkiomenville, Pa., breeder of 16 leading varieties of Poultry. Eggs, \$1.00 per 15. Catalog free.



illus. catalog.

B. Minorca, Buff Leghorn, P. Rock, W. Wyandotte, W. Leghorn, R. Cochin, Langshan. Eggs, \$1.00 per set; 6 for \$5.00.

Practical Farm Poultry says: "Get the B. Minorcas for layers; they lay 200 large white eggs a year." J. Parsons, Lindsey, Pa., hatched 12 chicks from 13 eggs. Fowls have fine range and are pure. Send for

W. W. SHAMPORE, Little Silver, N. J.

CHOICE SWEET-POTATO SEED

Yellow Jersey (the best), Red Bermuda, and Yellow Nansemond, at \$2.50 for 11-peck barrels, till sold out. 4-8

L. H. REDD, De Soto, Illinois.

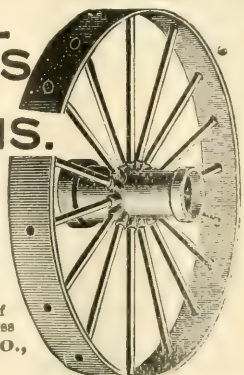
My Strawberry Catalog

FREE to all.

C. N. Flansburgh, Leslie, Mich.

METAL WHEELS for your WAGONS.

Any size you want, 20 to 56 in. high. Tires 1 to 8 in. wide—hubs to fit any axle. Saves Cost many times in a season to have set of low wheels to fit your wagon for hauling grain, fodder, manure, hogs, &c. No resetting of tires. Cat's free. Address **EMPIRE MFG. CO.,**
Quincy, Ill.



In responding to this advertisement mention GLEANINGS.



CARLOAD SHIPMENTS.

We have shipped the past month a carload of hives and supplies to W. O. Victor, Wharton, Tex. There were 500 hives in the car, all ten-frame, and mostly for extracted honey, which shows the kind of hives preferred in that section. Mr. Victor has 450 colonies of bees, and produced 45,000 lbs. of honey the past season. Bee-keepers in that section may supply themselves from his stock. We have also shipped a carload of hives and supplies to O. P. Hyde, Lampasas, Tex. These are almost all eight-frame hives, and for comb honey. But then the two points, although in the same State, are a good way apart. Mr. Hyde is also prepared to furnish the bee-keepers of Northwest Central Texas.

As we go to press we are making up a car for St. Paul, Minn., and another for San Mateo, Fla.

HONEY MARKET.

The crop of honey the past season must have been more abundant in many quarters than the reports indicated, or else the people are not eating as much as they did in better times. No doubt both are true to some extent. At any rate, there seems to be a plentiful supply, and very low prices are ruling. We are prepared to furnish, to those who need it, either comb or extracted of choice quality—comb, in 1-lb. sections, at 15c per lb.; large lots at a less price, which we will quote to those interested. Extracted, in 60-lb. cans, two in a case, at 8½c; two-case lots or over, 8c. We have choice white alfalfa and clover and basswood at these prices; also some very good honey, not quite equal to above, at a cent a pound less. Samples submitted to those interested.

SECOND HAND FOUNDATION-MILLS.

Since our last report five more of the second-hand mills have been sold. One more ten-inch has come in since, and one or two more are expected. The stock at present stands as follows:

Six-inch hex., No. 1461. Price \$10.00. This is in good condition, and just right for thin surplus foundation.

Six-inch hex., No. 1631. Price \$10.00. In good condition, and will make thin surplus foundation 10 ft. to lb.

Six-inch hex., No. 1565. Price \$12.00. This is in good condition, with very light wall, and will make extra thin foundation about 11 ft. to lb.

Six-inch hex., No. 1669. Price \$10.00. This has made a good many hundred pounds of thin surplus foundation in our wax-room, and will still do good work; has a few slight blemishes which are no detriment practically, but hardly suitable for the high standard of excellence attained by our foundation.

Ten-inch round-cell, No. J. J. old-style frame. Price \$10.00. Has been used but little, and is in good condition. It is well worth the price to any one wanting to make medium foundation for their own use.

Samples from any of above mills sent on application to those interested.

WINTER soon is over!

And if you contemplate buying
Bees and Queens
You will do well to write
For prices to

LEININGER BROS., FT. JENNINGS, O.

W. O. Victor, of Wharton, Tex., took

45,000 Lbs. of Honey in 1894.

He offers Italian Queens—good, old-style honey-queens—untested, first order, to any address, at 50c each. Also bees in any quantity; 450 colonies to draw from. Root's goods constantly in stock. Prices to suit the times. Buy near home, and save freight.

S. J. ENGLISH, Englishville, Ga., will deliver f. o. b. Andersonville, Ga., 30 COLONIES HYBRID AND ITALIAN BEES, ON L. FRAMES, For \$100.00.

KIND WORDS FROM OUR CUSTOMERS.

The wire netting was received in good order. I am well pleased with it. I don't see how you can sell it so cheap—just half what it would cost at my hardware store, after paying the freight. Prosperity to the Root Co. is the wish of your friend.

Hampton, Ky., Jan. 28.

G. W. DULEY.

THOSE NEW ROOT POLISHED SECTIONS.

I am much pleased with the 8000 1-lb. sections you sent me. I have already set up 5000. They hold out all right, besides the breakage. They are very nice.

Spragueville, N. Y., Jan. 30.

WM. HULL.

OUR WORK CAN NOT BE BEAT.

The goods were received, and the cases and frames are all nailed up. They were all perfect, and went together without any trouble. Your work can not be beat. Thanks for the extras.

Manchester, N. Y., Feb. 2.

EZRA G. SMITH.

THE CRANE SMOKER.

I bought a Crane smoker of you last spring, and like it very much. I have used other smokers, but find it far superior to any of them. The blast is as strong now as when I got it, and it saw as much service as a smoker generally does in a season.

Calamine, Wis., Jan. 6.

F. L. MURRAY.

ARTICLE MORE THAN FAIR.

I have read your article in GLEANINGS (on the dovetailed corner), and I thank you very much for the kindly spirit in which you have written. Surely your article is more than fair, and I said to Mrs. Abbott that I had not a word of fault to find. There is one thing, however, that I desire to say, so I may not appear to condemn a thing without seeing it. I have one of your hives which came direct to me from you, and I have had a sample once before. They are made the best of any of the kind I have seen.

St. Joseph, Mo.

E. T. ABBOTT.

QUEENS ALIVE TO AUSTRALIA BY MAIL.

Your postal card and queen-cage arrived here Jan. 16. All the bees were dead except two and the queen. I introduced her into queenless nuclei the same day, and she is apparently doing nicely.

Tryphena, New Zealand, Jan. 22. JOHN BLAIR.

The queen you sent me arrived in splendid condition Jan. 8, 1895; in fact, she looks as though she were just caged. There were 7 bees dead, all the way from a dry-looking bee to one just dead. I have put her in the hive, under wire netting. Although liberated by the bees, on looking through the hive I could not sight her. I am afraid I have made a mistake in putting her into a colony which was preparing to swarm, first taking five frames of bees and brood and queen to start another hive.

JAMES H. COLMER.

Woolbrook, New England, N. S. W., Aus., Jan. 14.

Dear Friend Root:—I have much pleasure in informing you of the arrival of the queens Jan. 10. The select tested queen was dead, and all the bees except one; but the other lot was in splendid condition—only 6 bees dead. I consider the double box a great improvement, and very suitable for this country; and they had abundance of food that would last them as long again, and it was in splendid condition. I don't think the tested queen could have been long dead, because she looked quite fresh. I am also sending you our local paper, where you will see the account of their arrival. I have to thank you very kindly for your promptness in forwarding me the bees. I am highly pleased with the one that landed alive.

Alex. BAIN.

Asylum, Toowoomba, Queensland, Aus., Jan. 17.

I am glad to report that the Italian queen sent by you in September last has arrived alive, and has been introduced safely—only one worker was alive when she arrived. I have not seen the queen yet, as I was away from home on a visit to Sydney, and have only just come home again. I intend to raise some young queens from her at once. Please accept thanks for sending the queen. She arrived here October 20.

Huonville, Tasmania, Nov. 8.

E. LINNELL.

Alsike Clover Seed Fruit Plants.

For Sale. \$6 per Bush.

One bushel or more, sack included.
Silverhull Buckwheat, 75c per bushel.

W. D. SOPER & SON, Box 565, Jackson, Mich.

Where to buy them at whole-sale prices. Send postal card for descriptive and wholesale catalogue of all of the leading varieties of *Strawberries, Raspberries, blackberries, Currants, Gooseberries, Grapes, and Potatoes.*
EZRA G. SMITH, Manchester, Ont. Co., N. Y.
Please mention this paper.

Notice.

Pacific Coast

Bee-keepers.

We are Northwestern Agents for The A. I. Root Company's supplies, and can make prices that will interest you. Send us a list of your wants, and see if we can not save you money.

POSSON'S SEED STORE,

Portland, Oregon.

BEE-KEEPERS' SUPPLIES FOR 1895.

Such as Dovetailed Hives, Sections, Comb Foundation, Extractors, and every thing else used by a bee-keeper. All late improved goods. Immense stock. Goods sold at wholesale and retail. Write for our

DISCOUNTS FOR EARLY ORDERS.

Alsike clover and Japanese buckwheat furnished at lowest market price.

Address **JOSEPH NYSEWANDER, Des Moines, Iowa.**

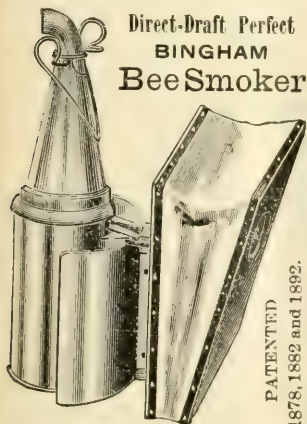
Florida Queens

3-Tei

Address until April 15,

bred from my original strain of Maryland Italians, which has given such general satisfaction as honey-producers. Untested queens ready March 1st, \$1.00 each; 6 for \$5.00. Write for prices on large lots and special circular. Safe arrival guaranteed.

CHAS. D. DUVAL, SAN MATEO, FLORIDA.



Direct-Draft Perfect
BINGHAM
Bee Smoker

PATENTED
1878, 1882 and 1892.

Best on Earth.

Bingham Perfect Smokers and Knives.

LOW PRICES:

All genuine are stamped with dates of patents and have all the new improvements.

The Doctor, 3 $\frac{1}{2}$ -inch stove, per mail, \$1.75; Conqueror, 3-in., \$1.50; Large, 2 $\frac{1}{2}$ -inch, \$1.00; Plain, 2-inch, 70c; Little Wonder, 1 $\frac{3}{4}$ -inch, 50c; Knife, 80c.

The Doctor, Conqueror, and Large, have extra wide shields, and double coiled steel wire handles to protect the hands from heat and soot. These shields and handles are wonderful comforts. The Plain and Little Wonder have narrow shields, and single coiled steel wire handles. 1895 Bingham smokers will all have movable bent caps to prevent dropping fire when sending smoke downward.

Circulars, knives, and smokers sent by return mail, also rates per dozen or 100. Address

T. F. BINGHAM, Abronia, Mich.



BURPEE'S FARM ANNUAL for 1895

"The Leading American Seed Catalogue."

A handsome book of 174 pages with many new features for 1895—hundreds of illustrations, pictures painted from nature—it tells all about the **BEST SEEDS** that grow, including rare novelties that cannot be had elsewhere. Any seed planter is welcome to a copy **FREE**. Send your address today on a postal.

W. ATLEE BURPEE & CO., Seed Growers, PHILADELPHIA.

In writing advertisers please mention this paper.

CASH FOR BEESWAX

Will pay 28c per lb. cash, or 31c in trade, for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 3c for best selected year. Old combs will not be accepted under any consideration.

Unless you put your name on the box, and notify us by mail of amount sent, we can not hold ourselves responsible for mistakes. It will not pay as a general thing to send wax by express.

THE A. I. ROOT CO., Medina, O.



STAHL'S
Excelsior Spraying
Outfits kill insects,
prevent leaf blight
and wormy fruit. Insure
a heavy yield of all Fruit
and Vegetable crops.
Send 6 cts. for catalogue
and full treatise on spraying.
Circulars free. Address
WM. STAHL, Quincy, Ill.

MUTH'S HONEY EXTRACTOR.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives,
Honey Sections, Etc., Etc.
Perfection Cold-blast Smokers.

APPLY TO

CHAS. F. MUTH & SON, Cincinnati, O.

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers."

SIMPLEX HATCHER & BROODER Combined.



THE MOST PERFECT
Incubator Made. Hatches
every egg that a hen could
hatch; Regulates itself auto-
matically; Reduces the cost of
poultry raising to a minimum.
Send for Illustrated Catalogue.
160 Egg size \$16.00.
SIMPLEX MFG. CO. Quincy, Ill.

Promptness is What Counts.

Honey-jars, Shipping-cases, and every thing
that bee-keepers use. Root's Goods at Root's
Prices, and the Best Shipping-point in the
Country. Dealers in Honey and Beeswax.
Catalog free.

WALTER S. POWDER,
162 Massachusetts Ave., Indianapolis, Ind.
Please mention this paper.



PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked
the quickest of any foundation made.

J. VAN DEUSEN & SONS,

1217dth Sole Manufacturers,
Sprout Brook, Montgomery Co., N. Y.

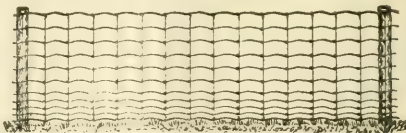



WOVEN WIRE FENCE
12 ft. high, built strong
pig and chicken tight.
Make it yourself for
13 to 20¢ a Rod
50 styles. A man and boy can make
40 to 60 rods a day. Catalog free.
KITSELMAN BROS., Ridgeville, Ind.

BEGINNERS.

Beginners should have a copy of the Am-
ateur Bee-keeper, a 70-page book by Prof.
J. W. Rouse. Price 25 cents; if sent by mail,
28c. The little book and the Progressive
Bee-keeper (a live progressive 28-page monthly
journal) one year, 65c. Address any first-
class dealer, or

LEAHY MFG. CO., HIGGINSVILLE, Mo.



"A CONDITION NOT A THEORY"

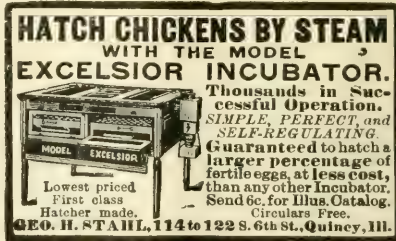
confronts the searcher for elasticity who
runs up against The Page fence. As he
gathers himself together again, he ponders
not over "the mistakes of Moses," but his own.
He thought because it had proved a myth in
other cases it might in this. The success of
The Page has induced the makers of soft
wire fences to claim boundless elasticity in
every little "hump" or twist, or perhaps it is
carefully stowed away at the end of the line.
"Live fences" in the sense that a snake lives
as long as its tail "wiggles."

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

In responding to this advertisement mention GLEANINGS

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write
for prices on One-Piece Basswood Sections, Bee-
Hives, Shipping-Crates, Frames, Foundation, Smo-
kers, etc. **PAGE & LYON MFG. CO.,**
8tdfb New London, Wis.



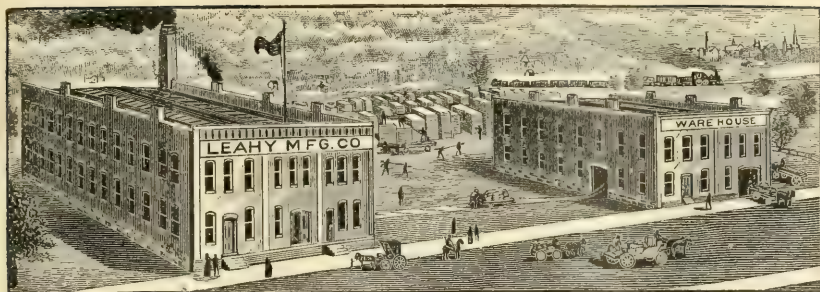
HATCH CHICKENS BY STEAM
WITH THE MODEL
EXCELSIOR INCUBATOR.
Thousands in Suc-
cessful Operation.
SIMPLE, PERFECT, and
SELF-REGULATING.
Guaranteed to hatch a
larger percentage of
fertilized eggs, at less cost,
than any other incubator.
Send 6c. for Illus. Catalog.
Circulars Free.
GEO. H. STAHL, 114 to 122 S. 6th St., Quincy, Ill.



**ONE MAN WITH THE
UNION COMBINATION SAW**
Can do the work of four men us-
ing hand tools, in Kipping, Cut-
ting off, Mitering, Rabbeting,
Grooving, Gaining, Dadoing,
Edging-up, Jointing Stuff, etc.
Full Line of Foot and Hand
Power Machinery. Sold on Trial,
Catalog Free. 1-24c

SENECA FALLS MFG. CO.,
44 Water St., Seneca Falls, N. Y.

TRUSSES on 30 Days Trial
Easy, durable and
cheap. A radical
cure effected. Send for sealed catalogue.
EGGLESTON TRUSS CO., Masonic Temple, Chicago, Ill.



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Florida Queens

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bred from my original strain of Maryland Italians, which has given such general satisfaction as honey-producers. Untested queens ready March 1st, \$1.00 each; 6 for \$5.00. Write for prices on large lots and special circular. Safe arrival guaranteed.

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By mail postpaid, safe arrival and satisfaction guaranteed. Order by the letters and the numbers from this advertisement **NOW**, as these are introductory sets, not in catalogue, an **Elegant Annual of 168 pages**, which will be sent free with first order. If none of these sets suit you and you want anything in our line send for **CATALOGUE FREE**. About 60 pages devoted to **VEGETABLE and FLOWER SEEDS, 70 to PLANTS and the balance to the CREAM OF THE FRUITS.**

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 " N-10 Tuberoses, Double Flowering Size...50c
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 Set 103-8 Peach, 4 sorts...50c
 " 104-8 Apple, 4 sorts...50c
 " 105-2 Pear, 2 Cherry...50c
 " 106-6 Grapes, 3 sorts...50c
 " 107-8 Grapes, all Concord...50c
 " 108-4 Gooseberries, 4 sorts...50c
 " 109-10 Currants, 3 sorts...50c
 " 110-30 Raspberries, 5 sorts...50c
 " 111-50 Strawberries, 5 sorts...50c
 " 112-1 each Japan Chestnut & Walnut...50c
 " 113-20 Blackberries, 4 sorts...50c

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W. ATLEE BURPEE & CO., Seed Growers, PHILADELPHIA.

HONEY COLUMN

CITY MARKETS.

KANSAS CITY.—*Honey.*—The stock of comb honey is large; market well supplied. Fancy white 1-lb. combs, 15; amber, 12@13. Receipts of extracted, light; white, 7; amber, 5½@6; southern, 4½@5. Beeswax, 22.
HAMLIN & BEARSS,
Mar. 8. Kansas City, Mo.

ST. LOUIS.—*Honey.*—Inquiries are larger, and demand somewhat better. We quote choice clear comb, 14½@15; amber, 13@13½; extracted, in barrels, 4@5. Prime yellow beeswax, 29½@30.
D. G. TUTT GROCER CO.,
Mar. 8. St. Louis, Mo.

CLEVELAND.—*Honey.*—The demand for white comb honey is somewhat slow. No. 1 1-lb. sections are selling at 13@14; No. 2, 11@12. No. 1 water-white extracted, 6@8. Beeswax, 26@28.
WILLIAMS BROS.,
Mar. 7. 80 & 82 Broadway, Cleveland, O.

BOSTON.—*Honey.*—We quote you our market on comb honey at 13@14c. with supply light, and fair demand. Extracted, 5@6.
E. E. BLAKE & Co.,
Mar. 9. Boston, Mass.

BUFFALO.—*Honey.*—Honey market is extremely quiet; still, our stock has moved off quite well considering the times, and indications are that we shall be able to clean it up. Sales to-day of fancy, 14@16; storage, 10@12. Off grades and irregular quality of honey are moving slowly at prices ranging from 8@10c; buckwheat is also extremely dull at 7@8. Extracted honey finds very little sale here. Beeswax, 25@30.
BATTERSON & Co.,
Mar. 7. Buffalo, N. Y.

PHILADELPHIA.—*Honey.*—Comb honey in better demand at 12@13 for best white. Extracted in fair demand at 5@6. Strictly white clover at 8@9.
WM. A. SELSER,
Mar. 8. 10 Vine St., Philadelphia, Pa.

DETROIT.—*Honey.*—Best white comb honey is selling in a small way at 15c; other grades, 11@13. Extracted, 6@7. Beeswax firm at 28@30.
M. H. HUNT,
Mar. 8. Bell Branch, Mich.

CHICAGO.—*Honey.*—During the past two weeks a good movement has been felt in the market. Sales have been of small lots, or quantities, each time, but sufficiently frequent in occurrence to make the aggregate sales of some moment. White comb of the best grades, 14c; travel-stained or off in color, 13@13½; yellow comb, 10@11; dark, 7@9. Extracted, 5½@7, according to flavor and package—60-lb. cans of white bring highest price. Beeswax, 23@30.
R. A. BURNETT & Co.,
Mar. 7. 163 So. Water St., Chicago, Ill.

SAN FRANCISCO.—*Honey.*—The demand for both comb and extracted honey is rather light, and supplies are ample to meet all local demand. We quote to-day: White extracted, 8½@9; light amber, 5½@6½; amber and candied, 8@9. Comb honey, choice white, 9½@10; amber, 7@8. Beeswax, 26@27.
SCHACHT, LEMCKE & STEINER,
Feb. 25. San Francisco, Cal.

DENVER.—*Honey.*—There seems to be an improvement in our market; still, the prices remain about the same. No. 1 comb, in 1-lb. sections, 11@12; No. 2, 9@10. Extracted, No. 1 white, in 60-lb. cans (2 in a box), 6@7. We could handle to advantage a quantity of No. 1 comb honey; also pure beeswax at 22@25.
R. K. & J. C. FRISBEE,
Mar. 9. Denver, Col.

ALBANY.—*Honey.*—It is surprising where all the comb honey comes from. We supposed it was all in market, but we have had a large number of consignments, for this season of the year, during the past month, and there is also a very good demand. Clover sells at 11@13; buckwheat and mixed, 8@10. Extracted scarce, and sells at 5@7.
CHAS. McCULLOCH & Co.,
Mar. 8. Albany, N. Y.

SPRINGFIELD.—*Honey.*—Our market is very slow. Buckwheat, 10; white-clover, 13@14.

PERKINS & HATCH,
Mar. 9. Springfield, Mass.

CHICAGO.—*Honey.*—We report our market well cleaned up on fancy white comb honey in 1-lb. sections. A neat package and a fancy article would sell quickly at 14c. No. 2 comb, or dark, would not sell at over 10@11. We report better inquiry for extracted, at 5@7, depending on quality. Beeswax selling at 30c.
S. T. FISH & Co.,
Mar. 8. 189 South Water St., Chicago, Ill.

KANSAS CITY.—*Honey.*—The demand is only fair for both comb and extracted honey. We quote No. 1 white 1-lb. comb, 14@15; No. 2, 12@13; No. 1 amber, 13; No. 2, 10@11. Extracted, 4½@6. Beeswax, 22@25.
C. C. CLEMENS & Co.,
Mar. 8. Kansas City, Mo.

CINCINNATI.—*Honey.*—Demand is slow for extracted and comb honey, with a fair supply. We quote extracted honey at 4@7c per lb. on arrival. Comb honey at 14@16 in the jobbing way for best white. There is a good demand for beeswax at 25@28c per lb. for good to choice yellow.
CHAS. F. MUTH & SON,
Mar. 11. Cincinnati, O.

We offer California comb honey, 1-lb. sections, 36 sections to the case, at 10 and 11 cts. per lb., depending on quality. New York State 2-lb. sections, amber, 10c per lb.; white, 12c. We will either buy or sell extracted honey. Correspondence solicited.
S. T. FISH & Co., 189 So. Water St., Chicago, Ill.

Four barrels of basswood and fall honey for sale at 6¼c per lb., f. o. b. here.
CHAS. DADANT & SON, Hamilton, Ill.

Closing out balance of my fine extracted basswood honey at 7c f. o. b. Who is not supplied?
ELIAS FOX, Hillsboro, Wis.

ALFALFA HONEY, very white, thick, and rich. Two 60-lb. cans at 7c. Same, partly from clover (tinted), 6c. Samples, 8c.
OLIVER FOSTER, Las Animas, Col.

We yet have extracted alfalfa at \$7.80 per box of 120 lbs.
AIKIN BROS., Loveland, Colo.

BEESWAX WANTED.—Will pay 31½c cash for absolutely pure beeswax that will stand chemical test. Write me at once.
WM. A. SELSER, 10 Vine St., Philadelphia, Pa.

BUFFALO, N. Y. Unsurpassed Honey Market.
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Commission Merchants. 187fdb and Prompt.

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Address OTTO KLEINOW, 122 Military Ave., Detroit, Mich.

25 Swarms of bees for sale, with or without hives, at Mountain View, near El Monte, Cal.
MRS. W. C. DAVIS, El Monte, Cal.

SEED POTATOES. Colvin's New Ideal. Best new Potato, E. Vorthier, Carman No. 1, Banner, 20 varieties; Dutton Flint Corn, Seed Oats, Small-Fruit Plants, etc., at Hard Times Prices. Price List free. Address **CEO. H. COLVIN, L. Box 6, Dalton, Pa.**

Jas. M. Smith, Perkiomenville, Pa., breeder of 16 leading varieties of Poultry. Eggs, \$1.00 per 15. Catalog free.

ITALIAN BEES Ready in May. Queens \$1.00. Bees by the pound, \$1.00. One-frame nucleus with queen, \$2.00; two frames, \$2.50. Also Barred Plymouth Rock eggs for setting, \$1.00 per 15.
6-17ei **MRS. A. A. SIMPSON, SWARTS, PA.**

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CONVENTION NOTICES.

The Utah Bee-keepers' Association will hold its semi-annual meeting on Thursday, April 4, at 10 A.M., in the Fish Commissioner's rooms, in the new city and county building, Salt Lake City.

GEO. E. DUDLEY, Sec., Provo, Utah.

The next meeting of the Western Washington Bee-keepers' Association will be held on Monday, April 8th, in Horticultural Rooms, City Hall. Bee-keepers are invited.

G. D. LITTOOY, Sec., Tacoma, Wa.-h.

CIRCULARS RECEIVED.

Price lists of apianarian supplies in general have been received from the following parties:

Leahy Manufacturing Co., Higginsville, Mo.
Mrs. Fannie B. DeWitt, Sunny-ide, Md. Queens and bees.
G. B. Lewis Co., Watertown, Wis.
Emerson T. Abbott, St. Joseph, Mo.
L. J. Stringham, 105 Park Place, New York.
Charles F. Muth & Son, 976 Central Ave., Cincinnati, O.
W. H. Norton, Skowhegan, Me.
George W. Stephens, Denison, Ia. A new frame-spacer.
J. VanDeusen & Son, Sprout Brook, N. Y. Foundation.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must say what your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices of offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Old combs in frames. Describe, with price. W. L. COGGSHALL, West Groton, N. Y.

WANTED.—To exchange one colony of bees for M. B. turkeys. PHIL FISHER, Hannibal, O.

WANTED.—To exchange the only wax-extractor in the world that will extract all the wax from old combs rapidly by steam, also bee-smokers, for wax. C. G. FERRIS, South Columbia, Herk. Co., N. Y.

WANTED.—To exchange Universal wood-worker, one groover, one dovetailer, and one cutter-head table; also short jointer, all in good order. What have you to trade for one or all?
W. S. BELLOW, Ladora, Ia.

WANTED.—To correspond with parties wishing to sell or test my new hive. F. DANZENBAKER, 1110 New York Ave., Washington, D. C.
Reference, GLEANINGS.

WANTED.—25 to 100 hives of bees. Who can furnish them the cheapest? I will exchange, for bee-hive machinery, queens bred from a straight five-banded breeder valued at \$50, or from imported stock.
H. G. QUIRIN, Bellevue, Ohio.

WANTED.—To exchange 200 colonies of bees for anything useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—A quantity of drawn combs.
edit I J. STRINGHAM, 105 Park Place, N. Y.

WANTED.—To exchange Black Minorca eggs at 60c per 15 for a few untested queens.
H. BARBER, Adrian, Mich.

WANTED.—An improved Barnes foot-power saw, for lowest cash price.
J. EVERMAN, North Middletown, Ky.

WANTED.—To exchange raspberry and blackberry plants, \$6 per 1000, bees \$5, Japanese buckwheat, for beeswax. A. P. LAWRENCE, Hickory Corners, Mich.

WANTED.—Bees, bee-supplies, and poultry, in exchange for strong, well-rooted basswood-trees. This is the time to transplant.
W. R. LIGHTON, 601 N. Y. Life Bldg., Omaha, Neb.

WANTED.—To exchange yellow Italian queens the coming season, also the best varieties of strawberry-plants, cheap, for foundation or coo.
MRS. OLIVER COLE, Sherburne, Chenango Co., N. Y.

WANTED.—To exchange alfalfa seed and span mare mules, for nuclei and queens and basswood-trees.
BERT. W. HOPPER, Garden City, Kan.

WANTED.—To exchange bees, queens, and eggs (from B. P. Rocks, S. C. B. Leghorn, and Light Brahmas), for bee-supplies or offers.
CHAS. H. THIES, Steeleville, Ill.

WANTED.—To exchange some Bibles, albums, steel engravings, etc., for colonies or nuclei of bees, or offers.
W. T. ATKINSON, Auburn, N. Y.

WANTED.—Position in apiary, by man of experience.
L. H. GREENE, Wichita, Kan.

WANTED.—To exchange a 10-inch Root foundation-mill, good as new, for hives in flat, or sections 4¼x4¼, 7 to foot.
A. W. GARDNER, Centreville, Mich.

WANTED.—To exchange supplies and other goods for honey. O. H. HYATT, Shenandoah, Iowa. 20tf

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. GREEN, Ottawa, Ill.

SECOND-HAND TYPE.

We offer for sale the samples of job type shown below. It is practically as good as new.

BUCKEYE LOCK
Great Primer Concave, 12 A, \$1.00.

Large Type.
Dbl. Small Pica Fashion, 5A, 9a, \$2.00.

This TYPE for Sale. L. P.
Long Primer Fashion, 15A, 23a, \$1.50.

This is a Pretty Face

Pica Condensed Fashion, 18A, 22a, \$1.50.

PICA GLIPTIC. 1234567890
Pica Glyptic, 31A, \$1.50.

AAAAAAAAAAAAAAAAAAAAAABB BB
Pica Condensed Concave, 21A, \$1.00.

This is Extended
Nonp Antique, 20A, 36a, \$1.00.

HENRY E. BLISS

Long Primer Concave, 20A, 75c.

THIS IS A PEARL LETTER

Pearl Gothic, 40A, 75c.

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Is what it costs to take the leading bee-journals, even if secured at clubbing-rates. The BEE-KEEPERS'

REVIEW endeavors to give the CREAM of all these journals, and it costs only \$1.00. If you can't afford to take all of the journals, yet wish to be well informed in apicultural matters, try the REVIEW.

W. Z. HUTCHINSON, Flint, Mich.

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To every New Subscriber sending \$1.00 for the **Weekly American Bee Journal** for a year. (The book is "Bees and Honey" by Thos. G. Newman). Besides articles from the best bee-keepers, the Bee Journal now has 6 **Department Editors**—Mrs. Jennie Atchley in "The Sunny Southland;" "Canadian Beedom" by "Bee-Master;" "Questions and Answers" by Dr. C. C. Miller; "Notes and Comment," Ex-Pres. E. T. Abbott; "Doctor's Hints" on good health, by Dr. Peiro; and "Among the Bee-Papers" by "Gleaner," who gleans the best from all the bee-papers each week. Space for bidding more. Better send for **Free Sample Copy**, or \$1.00 as per above offer. **20-Cent Trial Trip** (3 months or 13 wks.) to New subscribers Address, **GEORGE W. YORK & CO., 56 FIFTH AVE., CHICAGO, ILL.**

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4-8

I told you so.

Mrs. Atchley:—The one-frame nucleus I got of you last spring gave me 120 well-filled one-pound sections. J. A. SMITH, Heber, Utah, Oct. 9, 1894.

Now, haven't I told you that it will pay to send bees north in the spring?

One-frame nucleus, \$1.00; 10 or more, 90c each. Bees by pound, same price. Untested queens to go with them, 75c each.

Untested queens by mail, \$1.00 each; \$5.00 for 6; \$9.00 per dozen, till June; after, 75c each; \$4.25 for 6, or \$8.00 per dozen. I breed the leather-colored Italians, 5 bands, and Carniolans, in separate yards, at safe distance.

Tested, 3 bands, \$1.50 each; 5 bands or Carniolans, \$2.50 each.

Fine breeders of either race, or imported queens, \$5.00 each. Full colonies with untested queens, \$6.00.

Ask for discounts to dealers, and by quantities. The only steam bee-hive factory in south Texas. Root's goods, Dadant's foundation, and Bingham smokers.

Safe arrival on every thing guaranteed. Send for FREE catalog that tells all about raising queens.

JENNIE ATCHLEY, Beeville, Bee Co., Texas.

Woodcliff Business Queens.

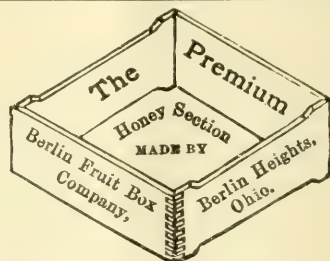
To please all, am breeding both Leather-colored and Golden 5-banded Italians. Have five apiaries, 3 to 5 miles apart, running 350 nuclei. Your orders filled promptly. Can furnish queens from March 1st to Nov. 10. The Leather-colored 3-banded Breeder, imported from Italy, Oct. '94.

The Golden 5-banded Breeder, selected from 1000 queens, some producing 400 lbs. of honey to colony. State what you want, and send orders now for early delivery. Guaranteed queens, 75c; special low price in quantities. Send for descriptive catalog.

Wm. A. Selser,
Wyncote, Pa.

World's Fair Medal

Awarded my **Foundation**. Send for **free samples**. Dealers, write for wholesale prices. Root's new **Polished Sections** and other goods at his prices. **Free Illustrated Price List** of every thing needed in the apiary. **M. H. Hunt,**
Bell Branch, Mich.



WE have a large stock of **SECTIONS** now ready, both No. 1 and No. 2. Write for special prices on winter orders in large or small lots, including all other Supplies. Also **Berry Crates and Baskets** made up or in flat.

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eitt **BERLIN HEIGHTS, O.**

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In bee-hives, sections, cases, etc.? If so, drop us a postal and we shall be pleased to send you a copy of our 1895 catalog and price list.

G. B. LEWIS CO.,
Watertown, Wis.

420 Lbs. Average

Is what my bees gave that I moved to the man-grove; those at home, 300 lbs. each; **5-banded bees, too**. Queens, **bred for business** from this stock, will be sent in 1895 for \$1.00 each until May; per doz., \$8.00. Circular free.

J. B. CASE, Port Orange, Fla.

GLEANINGS IN A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS **BEE CULTURE** ILLUSTRATED SEMI-MONTHLY Published by THE A. I. ROOT CO. \$1.00 PER YEAR MEDINA, OHIO.

Vol. XXIII.

MAR. 15, 1895.

No. 6.



WHAT STATE SOCIETY of bee-keepers has the largest membership? Ontario?

VOGEL says the Egyptian bee is nearly tropical; and when 30° F. is reached, every bee in the hive is dead.

I'VE HAD VACATION for two weeks, even from bees, with almost nothing to do but sing. Makes me younger.

I FOUND some beautiful sections in Southern Illinois, stamped P. H. Elwood, Starkville, N. Y. Say, Elwood, you keep out of here.

I KNOW NOW, from that picture on page 167, what has become of Jake Smith. He got so puffed up with gas that he exploded. A warning for others.

THE LATEST cure I've seen for a bee-sting is from *Bienen-Vater*, a strawberry applied. I hope A. I. Root will no longer insist that strawberries have no use.

HONEY-DEW HONEY has a defender in Stanley & Son, in *A. B. J.* And no wonder; for in 12 years they have raised 80,000 pounds of it, selling it for \$10,000.

WHAT'S BEST for a cushion, a right soft one? At the rate they're settling the question of the size of hives, it looks as if I'd have to sit on the fence the rest of my days.

THE BIENEN-VATER says queenless colonies frequently fill queen-cell cups with jelly just as if occupied by larvæ, and build them out, sometimes almost a finger long.

J. E. CRANE, in *Review*, leaves the big-little-hive question all mixed up. In his home apiary small hives are best, and large ones 6 miles away. The different conditions account for it.

SACALINE is a Russian plant that is having something of a boom as a forage and bee plant. Director Wilson, of Iowa Experiment Station, says in *Stockman* that it grows 8 to 12 feet high in a year, but he has no hope of its being a for-

age plant, because cattle won't eat it, even in Russia.

MIEL DE NARBONNE, or Narbonne honey, which sells in Paris at 60c a pound, Baist, in *Noerdlichen Bztg.* says, is a white honey from apple-blossoms. Phin's dictionary says, chiefly from rosemary.

CARAWAY, says V. Wuest, in *Noerdlichen Bztg.*, is a fine honey-plant in his locality. But Editor Vogel says, although cultivated largely in his region he never saw a bee on it. How is it in this country?

B. TAYLOR says, in *Review*, that he has 10 hives with 12 frames, 20 with 16, and 12 with 19 frames. After giving them a fair trial alongside of 10-frame hives, he has thrown them aside as useless.

H. L. JEFFREY writes, "Things that I knew for sure 25 years ago I have learned are quite different now, and it takes years to know for certain but very little of any thing." You've got it about straight, H. L.

A HIVELESS COLONY is reported in *Deutsche Imker*, hanging to the roof of a bee-shed. It hung in the form of a hemisphere, built nine combs, making them far larger than the standard German frame, which is less than the Langstroth.

"DO BEES PREFER new or old comb?" is a query in *A. B. J.* One replier thinks they prefer new, three think they prefer old; three "don't know," and the great majority think they have no preference. Here's a nut for the experiment stations.

ACCORDING to Baron Ambrozy, at the big Vienna convention, the four notable steps of progress since Dzierzon's discoveries are, 1. The extractor; 2. Comb foundation; 3. The queen-excluder; 4. The improvement in the manufacture of honey-drinks.

WHEN I READ on p. 187 how nicely W. S. Hart has every thing arranged, and when I remember what a nice fellow he is, I can't help wondering why a man of such good taste should remain a bachelor. Or has he such critical taste that no woman comes up to the mark?

A PROJECT is proposed to establish at Paris an apicultural syndicate, not to divert the honey-market to Paris, but to secure that for which there is no market, manufacture it into *caux devie* and stamp it with the label of the society, to secure its ready sale on account of its purity.

"MR. FREEBORN's name was first brought prominently forward before the bee-keeping world through the Bee-keepers' Union." P. 183. Wasn't it the other way? I never heard of the Union till after Mr. Freeborn's troubles, and thereupon arose the Union. [I guess you are right.—ED.]

IT'S REFRESHING to see on page 183 that we're not going to be less enterprising than the Germans in the matter of adulteration. So much adulteration there is one of the reasons that thousands of the Rietsche press are in use, so bee-keepers can make up their own wax and know that it is pure.

DID YOU KNOW you can tell the time by a stem-winder in the dark? Wind up your watch, and an hour later wind it again, counting the clicks. If it clicks ten times, that means 6 minutes to a click. Then if you wind in the dark, and count 45 clicks, you'll know it's $4\frac{1}{2}$ hours since it was wound last.

"FLOHISTS have so highly developed the rose that it has scarcely any pollen, and I am not sure but some kinds are so double they are entirely destitute," says Somnambulist. That's putting it very mild. Very few of the better sorts have a single grain of pollen, the stamens being all changed into petals.

"I DO NOT BELIEVE," says S. E. Miller, in *Progressive*, "there is one cellar in fifty that is a fit place to keep either comb or extracted honey." No; and in the fiftieth cellar it would spoil in this part of the country. In Colorado, where I'm told bread dries in the cellar, it may be all right, and in other dry climates.

HONEY SOAP, so called, says *Deutsche Imker*, contains no honey whatever. If you want the genuine article, something that will keep your skin soft and free from chaps, make it yourself. Take one pound common hard soap, add rain-water, place the earthen dish with the soap in a water-bath, or on a stove-mat, and boil till dissolved. Then add an ounce of honey, and continue boiling till the water evaporates.

THAT ARTICLE on p. 124 is very interesting; but that part of the heading which says, "Small hives more profitable," hardly fits. Boardman's 9 frames, $12\frac{3}{4} \times 12\frac{3}{4}$ inside measure, are equivalent to $10\frac{1}{2}$ dovetail frames. [The heading to which you refer was based on the cubic capacity of the Boardman hive. Nowadays the 8-frame Langstroth may be considered a small hive. This contains the same cubic capacity as the Boardman, and hence I classed it among the small hives. But when we compare Board-

man's nine frames to the Dovetailed hive's eight, the case is a little different. One would not think there was so much difference in the capacity of the two frames; but I shall have to acknowledge that I can't find any thing wrong with your figures. But, say; Boardman doesn't use 9 frames or the larger capacity because it gives more room, but because he thereby lessens the burr-combs.—ED.]



PACKAGES FOR EXTRACTED HONEY.

BARRELS FOR COLORADO NOT SUITABLE; WHY SQUARE CANS ARE BETTER; CANDYING OF HONEY A SERIOUS DRAWBACK; REACHING CONSUMERS DIRECT; A VALUABLE ARTICLE.

By R. C. Atkin.

I have read with interest Mr. E. France's article on this subject, in Feb. 15th GLEANINGS, page 129. I have a little criticism to make, but mainly wish to add to what he has said.

My criticism is in the use of barrels. Keeping the barrels in a dry place, and well coopered before using, is all right. It is a fact, that a barrel kept in a cellar or damp place, when filled with honey, will season and let the hoops fall off just as if it were empty. In the fall of 1887 I filled two 25-gallon white-oak barrels, they having been kept dry for months before, having eight hoops *hard driven* just before filling. These I brought with me to Colorado. In a few weeks after arriving here I found the honey—*candied too*—leaking out, and I could pull the hoops off with my fingers. Had the honey been liquid I might have lost the most of it. That the barrels can be made tight enough to hold the honey, by his method, there is no question; but a barrel shipped from Wisconsin *here* would not remain tight. A few days ago I received a 50-gallon barrel of sorghum shipped for Eastern Kansas. It may not have been *thoroughly tight* when shipped; but right in zero weather, and exposed to the cold, it began to leak so that I have had to drive the hoops on it.

I have, the past winter, liquefied and marketed between six and seven tons of honey. It was in 60-lb. cans. I sold it to consumers very largely, it going here and there all over the country, in lots of from one to four or five cans. Few of the purchasers knew how to liquefy, or *were fixed* to do it. Now, had I stored this honey in barrels, then opened the barrels and *spaded out* the honey to liquefy in other vessels, then returned to the barrels to ship, I certainly should have decided never again to produce extracted honey. But should I put it into cans to ship, then I must have two sets of vessels—an additional expense. If I had a trade

that would take honey in such large packages, and take it *at the same price as in cans*, and provided I did not have to ship *empty barrels* a long distance so that the freight would be more than the first cost of barrel, and if I did not have to liquefy before shipping, I could use barrels. If the barrel could be kept from year to year, and the crop sold at retail, it *might* be a cheaper package in the end, for it will last for years; but if I have to spade out the honey and put it into other vessels, I should build a wooden, tin-lined tank that would hold my entire crop, and do it at much less cost than the cost of barrels to hold the same; or, what would be better, a metal tank with a heating appliance, and liquefy the honey in the tank.

Just recently I had quotations from Fish & Co., of Chicago, and they quoted one-half cent less if candied. Now if, to get the best price for the honey, it be necessary to liquefy, the barrel is not the package. Mr. France says his barrels cost \$1.50 for 370 lbs., which is a little less than $\frac{1}{2}$ cent per pound. Our cans cost us $\frac{3}{4}$ of a cent per pound. The freight will be some lower on the barrels. I have forgotten just the difference, but it is not much; but if the honey is to be liquefied to get the best price, the liquefying is much easier done in the cans. It is not necessary to take the screw-cap off when melting. The honey will swell some; but the degree of heat necessary—and above which it ought not to go—will not swell the can sufficiently to burst or kink it. I have a tank that holds six cans, and covers the top of an old range that I purchased and fixed up for the purpose, and I usually leave the six cans in this and covered with water, from 24 to 48 hours. If the heat be regular, and as high as is safe, 24 hours will do; but with a slow fire, and the temperature often low, 48 hours is necessary. I have kept the caps screwed tight, and they did not burst a single can in melting several tons the past winter.

Now, while I should much prefer the can, and think it the cheaper in the end, I have a criticism to offer on it. A 60-pound can is too large. Two cans in a box make a package that is *just too heavy and awkward for one man to handle*. We can have them boxed singly at a little additional cost, it is true; but this is not the only objection. Many people will order by the 25, 50, or 100 pound lots. It is so natural and easy to order in 25 and 50 pound lots, or multiples thereof, that it is often done; and then we must ship more or less, or else correspond and explain. Two 50-pound cans in one box are abundantly heavy, and I think there is no valid reason why they can not be had in these sizes.

There are still other difficulties in the handling of extracted honey. If it would stay liquid we could afford to ship in large packages, and take somewhat lower prices; but when we get at best only three to four cents above

freights and packages, then have to cut half a cent or more because it is candied, it is hard on profits. I doubt whether one commission or wholesale house in ten is fixed for liquefying. If the wholesaler can not melt it, then it must go to the retailer candied. Is there one out of twenty-five retailers who knows how and is prepared to liquefy? I believe that, in the whole city of Denver, there is but one firm—and that not on a business street—that is in any manner prepared to liquefy. The Denver commission men tell me they can not sell honey well in 60-pound cans. If a 60-pound package is too large, the 400 or 500 pound barrel would be still worse.

Now, if extracted honey sells in the general markets, and holds its place with other sweets, it must be put in shape to *handle cheaply and easily*. If I were a wholesale dealer in the city, I would demand that the goods be put in packages that I could handle as other goods are handled, or I would pay only such prices as would give me a margin over the cost of such packages and getting it into them. What the commission man wants, and what he must have if the product ever obtains and holds its proper place in commerce, is the goods put in such shape that it will reach the consumer in original packages. Until this is done we shall continue to do as we are doing—sell to consumers direct.

The producer of grains, grasses, and vegetables, and all manufactured goods, can sell his products at any and all times. There are regular dealers, and the necessary appliances for handling all these things. If the individual farmer had to advertise his products, and sell and ship to those who may want and need his product in other parts of the country, as many bee-keepers now sell their product, how much would he get out of his stuff? The city dealer does not go to the farmer for his products, but goes to the commission and wholesale houses. When he finds what he wants, it is in such shape that he can buy as much or as little as he wishes.

I suppose that C. F. Muth is thoroughly equipped for handling honey and putting it in retail packages. He, no doubt, can use large quantities of honey in large cheap packages; but the general produce-dealer can not do this, and must sell in original packages. I have the past winter, as previously stated, sold several tons of extracted honey. I could not sell it to commission houses nor to retail dealers. Why? Just ask your grocer to sell in *your own market, in cans and barrels*, and you will know why. The wholesale houses must have the honey in the very cheapest large package, and then put it into his own retail package, or the producer must put it into retail shape and all properly packed in regular packages before it leaves the honey-house.

Here again comes that snag of candying, and

also the fact that we must have an expensive sealing package. If the package be glass, we have increased freights. Retail packages that do not seal cost from $1\frac{1}{2}$ to 3 cents per pound; and those that seal, from 3 to 5 cents per pound. Add to this the freights, and the getting of the crop marketed is as expensive as raising it. Then after we have done all this, and the honey is marketed in nice shape, it candies before the consumer gets it. Some of our honey candies so quickly that, if it were transported long distances, it would be solid before it got there. So you see at every turn there is something in the way. With these difficulties in the way we must be content to let it remain as it is—extracted always at a disadvantage, and comb only a luxury—or find some better method of marketing.

We must lessen the cost of retail packages; ship so that we get low freights and commissions, and put the goods up so that the consumer gets it in the original package. What this package shall be I do not know; but certainly if we could put it into cheap tins, and seal, say, in something like the square oyster-can—a package that is so cheap as to be thrown away, as are those of all fruits and other canned goods—then with each can printed instructions to the consumer, that each one who uses it will liquefy for himself, we could then afford to raise extracted honey; and not only that, but find it successfully competing with other sweets, and holding its place. I could put up a large tank, and heating appliance, to hold a big crop; then if I get the crop I could buy the cans, and pack for market. The purchase of cans need be only what is needed. It would then make no odds if the honey did candy; for it would remain so until the consumer got hold of it. It would not bring quite so high a price in the retail market; but the intermediate expenses would be much less, and so benefit both producer and consumer.

I do not think that we shall altogether do away with glass; but the main crop must be in a very cheap package, and go to the consumer candied, the glass and fancy packages being left for the fancy trade. If this can not be done, then the trade in extracted honey must always be a very uncertain thing until it can be produced at a price less by considerable than the price of sugar. I say less than sugar, because of these difficulties in the marketing of it. It would be quite different if we could keep and handle the honey as easily as we do sugars. With a simple cheap package, and the goods sold to the consumer in the original package, it will become more and more of a staple and more and more a common article of diet.

Loveland, Colo., Feb. 26.

[This is one of the best and one of the most comprehensive articles on this subject that we have ever received, and I commend its careful reading to every producer. Barrels, whatever

may be their advantage in the Middle and Eastern States, are not suitable for a large part of the West, where the climate is dry, like that of Colorado and California. Tin or glass packages, or something that will not shrink, must be used; and, besides, as friend A. well says, they are more suitable for liquefying. We have tried spading the honey out of barrels; and we can't afford to buy in barrels, spade out, and liquefy, and run into smaller cans, and make any money out of it. But instead of spading, we find it cheaper to set the barrel in a large tub of hot water, and keep the water hot with a steam-pipe. But, few have the steam, and so the spade process is the one usually employed. But honey in square cans can be liquefied easily by any one. We set ours in a coil of steam-pipe.

We must, as producers, have our packages suitable for the honey-market, and, so far as possible, for the consumer. If it is true, that honey in barrels must be spaded out by the average commission house, and if he can't do it except at a loss, sooner or later he is going to make the producer pay for it in a reduced price. As square cans are so near the cost of barrels, per pound, it will be seen that they have a big advantage, not only in this one matter of candying, but in the fact that the bulk of honey can so easily be divided upon the multiple of 60 lbs.—Ed.]

RIPENING EXTRACTED HONEY.

SHOULD HONEY BE EXTRACTED THROUGH THE SEASON, OR LEFT ON THE HIVES TO BE EXTRACTED AFTER THE SEASON?

By E. France.

Mr. E. France:—Having read your articles in the late issues of GLEANINGS with much interest, I should like also to get your views, if I can, on one question that I have had upon my mind for some time. I believe Mr. A. I. Root advocates letting the bees cure the honey, leaving it in the hive until the latter part of the season, so it may cure well. It has also been our experience, that honey left in the hive toward late or until fall, is better in all respects than honey extracted, say, in June. I believe that you and a good many others extract at intervals during the whole season, commencing as early, even, as apple-bloom. Now, my question is, How do you manage to turn out a good article, extracting so early? or, how do you cure your honey? I should like to make or get out honey of the best quality, and am at a loss to know how it can be done without its being cured in the hive. I think I have seen in your writings that you put it in kegs as soon as extracted. I have read that curing in open barrels or crocks would be about as good, but I don't know. Do you extract any but that which is capped over? G. A. LUNDE.

Stoughton, Wis., Feb. 17.

[Mr. France replies:]

My friends, this is a big question; and an answer that would be all right for one place could not possibly work in some other location. Some locations have long steady flows of honey; others, a short heavy flow, a sudden stop, and then

all is over. The last is my condition. We will look at it from my standpoint, and let the other fellow answer for himself. Right here we never have any honey for the bees to work on to more than make a scant living until the middle of June. We have no fruit-blossoms to amount to any thing. Dandelion is the first for earliness. When the dry seasons have not killed the white clover, that will give the bees a living until about the middle of June. There may be a little honey gathered in the fall, and a little in the spring before the middle of June. But it is *all dark*, and but little of it. But one pound of it will materially darken 100 lbs. of white honey, so it is very important to go over all the combs and take out every ounce of this dark honey, at the commencement of the white-honey flow, so we have extracting No. 1, or, as we mark it, one X. It is dark, and most of it goes to the baker's.

Now we have emptied our combs of the dark honey. But we have not washed out the combs; and, do the best we can, there will be enough of the dark honey left to shade. The next extracting is No. 2 as to color. If the honey is coming in pretty fast, the combs will be full in a week or ten days. If the weather has been fair, and not much rain, the honey will be thick and good—about two-thirds capped over. We must get this extracting out, for the same reason we did the first, for from now on until the close of the basswood season, we get our whitest honey; and now, if we are to get a good crop of honey, the bees are doing their best, and will fill their combs once in a week. Assuming that the bees have three sets of eight L. frames, or their equivalent in some other frames, if we empty the combs once a week we can go right along with the second set of extracting-frames. If it is a good season they can be extracted three times yet, making five extractings in all. The honey will be good if the season is not wet. If it rains much or often, then we have to wait longer between extractings.

We will now see how it would work to wait until the close of the season, as above, extracting thrice during the heavy honey-flow. We shall have to empty 6 sets of L. frames, if we wait until the close of the season; or, in other words, we shall have, at the close of the season, including the brood-nest, seven stories of combs. How about the wind blowing them over? How many of us are prepared to keep over that many empty combs, if we had them? If we have 100 or more colonies, we shall have to have a big pile of extra supers and extra combs. If we extract at the close of the season, the bees will be cross, and get every one on the steal, and we shall have the biggest robbing-scraps you ever saw, unless extra care is used. No greenhorn can do it; and how about the empty combs, after they are extracted, all sticky with honey? What are we to do with them—put them away in that condition, or

give them to the bees to clean up? If the bees are to clean them, not one man in ten will do it without getting the bees to robbing. Well, what are we going to do about it? For my part I am going to extract while the bees are gathering honey. I get no fall honey. My bees have to winter on basswood honey, and we must quit extracting in time for them to put up their winter supplies. We put our honey in barrels, right in the yards, as it comes from the combs; drive in the plugs, take the honey home, and deposit it in our honey-house. We don't loosen the plugs. We don't extract thin honey. We wait for it to get thick enough to keep well. We don't wait until all is capped, but only from one-half to two-thirds. When the weather is very dry, honey may be extracted as soon as gathered, and be good. Of course, when we are extracting we get some honey that was gathered the same day, and some the day before; but how can we help it? If it averages thick and good, and will keep sweet, that is all we can expect. We sometimes have honey that sours more or less. We don't sell that for first-class if we know it. The bakers can and do use sour honey, and they buy it. They say it takes more soda or less acid to make it work right.

Platteville, Wis.

MANUM IN THE APIARY.

SECTION CARTONS; WINTER VENTILATORS.

By A. E. Manum.

"Good-morning, Charles. It seems to me you are out in good season this morning."

"Yes, Manum, I find myself confronted with a little difficulty this morning, and I have called to consult with you. As you know, our cartons came last Friday afternoon, and this (Monday) morning my helpers all came in good season, as we were intending to get my honey all ready to car with yours Tuesday, as you and I had agreed upon, and I learn the freight-car we had ordered for the purpose is already at the station in waiting for us. But upon going to work putting the sections of honey into the new cartons I found that the latter were too small. We opened all the boxes, and tried some from each box, and found all alike—too small—and I have come over to see if yours are likewise too small."

"No, Charles, mine are just right; and, as you see, my honey is all crated and marked, and ready to ship."

"Now, that is very strange, Manum. Your cartons and mine were ordered at the same time, and of the same firm. Our sections are just alike, and my cartons are too small, while yours are just right. Well, here; I have brought over 20 of mine for you to examine."

"I declare, Charles, they are too small, sure enough. That is too bad. We have waited

and waited for the manufacturers to get them out until we have lost the best of the market, no doubt, as it has been my experience that the first honey put upon the market usually sells for the highest price; and, furthermore, we have arranged to ship our honey together by *freight*, to save expense, rather than ship separately by express. But here we are—mine is ready, while yours is not, and is liable not to be for some time if you have to order more cartons made, which I can see no other way for you to do under the circumstances. It is very unfortunate, to say the least, as it is a damage to us both, especially to yourself."

"Now, Manum, what would you advise me to do?"

"Why, Charles, I would telegraph the parties that these cartons are too small, and to make you another lot at once."

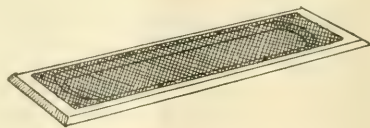
"Yes, that is my only way out of the scrape; and in the mean time you might as well ship your honey at once, and not wait for mine; and I will see the station agent on my way home and countermand the order for the freight car, as you will doubtless ship your honey on the butter-car to-day."

"All right, Charles; that is our best way out now, as the matter stands. Hereafter, Charles, I think it will be policy for us to order our cartons early in the season, and of the *old firm*. They have always been prompt and reliable. Suppose we order one or two thousand more than we need the present season. They are not very expensive, and are something that will keep without shrinkage. I have learned, Charles, by sad experience, that it is bad policy to leave an old and reliable firm—such as the A. I. Root Co., for instance—and dodge off on some side branch, expecting great things. Nine times out of ten the tender branch will let us down with a *thud*, as you have just been let down."

"Yes, that is right, Manum—just right. I want to know what you are doing with those pieces you have piled up here on your bench."

"Oh! these are for winter ventilators, to take the place of quilts; you know that quilts are more or less a bother. To begin with, the bees will cover them with propolis in a year or two so that they are no better than enameled cloth or boards, to allow the escape of moisture; and, furthermore, the bees gnaw holes through them in so short a time that I find it quite an expense to renew them every two or three years; and, again, if the wind blows—as it usually does—when packing or unpacking the bees, these cloths will be scattered all over the yard if left on the ground or a hive; and, also, by the use of quilts, when putting them over the frames the whole brood-chamber has to be uncovered, thereby disturbing the bees and permitting the warmth to give place to cold air, since we have always chosen a cool day to pack the bees, owing to the fact that, in a cool day, they are

more apt to be compact and at the bottom of the frames, making it much more convenient covering them with the quilts than in a warm day when the bees cover the top-bars. But with an arrangement made thus I can not only



MANUM'S WINTER VENTILATOR.

pack my bees in less than half the time that it would take with quilts the old way, but they are much better, as they will last a lifetime, and cost no more than cotton sheets—called quilts. To use them, all I have to do is to separate the two honey-boards two inches apart and place these ventilators between them and cover all with the thick cushion."

"Yes; but, Manum, suppose one does not have his honey-boards—cover to brood-chamber—in two parts as you do; how can he use these ventilators?"

"Oh! just simply by shoving the board to one side and placing the ventilator at one end instead of in the middle of the brood-chamber; and besides, Charles, they can, in case of emergency, be used as feeders. By placing them with wire screen downward the space can be filled with moist sugar, which would keep a starving colony alive for a day or two, or until they can be fed more abundantly."

"In this case, then, what are you going to do with your old quilts?"

"Charles, when I visited our friend J. E. Crane last spring I learned what to do with them, whereby I am putting them to good use by using them for smoker-fuel. I can tell you that, with my Crane smoker filled with well-politized rags, I can drive bees home or mad dogs out of the streets."

Bristol, Vt.

REPORT OF THE CALIFORNIA STATE BEE-KEEPERS' ASSOCIATION.

By J. H. Martin.

The California State Bee-keepers' Association held its annual session in the new Chamber of Commerce, Los Angeles, on the 5th and 6th of February, 1895. After the preliminary routine the subject of marketing honey was taken up for general discussion. The trend of the discussion was toward coöperation and the establishment of exchanges for the purpose of handling honey. Fruit exchanges were proving a success, and why not have success in the sale of honey also?

Mr. McIntyre seemed to have an exchange of his own, which was working satisfactorily, as he always sells his honey for not less than 6 cts.

per lb. His plan is to hold his honey until he can get his price.

Capt. Wood sold the most of his honey in the home markets, and would not sell for less than 6 cts.

There were some pertinent remarks in relation to the commission men and their practices, and it seemed to be the desire of the bee-keepers to get along without the commission men, and to get into a more satisfactory way of disposing of the product.

In the afternoon session Mr. Brodbeck read a paper upon the coöperation of bee-keepers, which was followed by a long discussion.

SELLING HONEY ON THE COÖPERATIVE PLAN; GIVING COMMISSION MEN THE GO-BY.

Mr. Mellen cited the fact that a coöperative store had been organized in the town of Acton, which was a success. Coöperative stores are being established all over the country. These coöperative associations act together; and if the sale of honey could be effected through such organizations we could secure better prices for it. At present we are at the mercy of the capitalist, and the coöperative plan is the best way out of our difficulties.

It was stated that plans were in progress toward forming some such organization in Los Angeles for the purpose of handling honey; and if the coming season should be a bountiful one, as the abundant rains indicated, it would be a good season to start such an organization. The exchange, or whatever it may be named, should have an officer at the head of it. Every producer who would support the organization should state the amount and quality of his honey, and attach his name to every package. The officer of the association has samples only in his hands, and secures orders from these samples. This obviates the necessity of storing large amounts of honey in any given warehouse, with its attendant expense and risks.

Bee-keepers, instead of putting their honey into five-gallon cans exclusively, should use a greater variety of packages. Some recommended one-pound cans, and all the way up to the standard five-gallon.

Prof. Cook said that great corporations held together as one man. The laboring men should in like manner hold together. He believed the time was coming when the laboring men would do this, and better prices would result. Have patience, and agitate. The producers are too suspicious of each other, and so scattered that the coöperative plan had not been adopted. The fruit-growers had been compelled to organize, and the result is better prices for their fruit. It needs enthusiasm and some self-sacrifice, perhaps.

The great fundamental principle is, to first establish a good price and stick to it. The fraternity were greatly handicapped by so many needy bee-keepers who are obliged to sell their honey in order to purchase the necessities of

food and raiment. If an organization is formed it must have a little capital to enable it to advance some money to this class of producers.

Capitalists are afraid of coöperation, and will hinder its establishment if possible. The professor did not believe in the mushroom growth of such organizations. A slow growth gives it a more substantial footing.

Mr. Touchton said that California honey had to compete with the whole United States and Cuba. He thought that an exchange, however small, if once established, would grow. This would lead to putting up honey in such packages as the public demanded. Each producer should keep his own brand on his packages, and thus make a reputation.

Mr. Wilder thought that California honey should bring as good a price as eastern, and he proposed to take a carload east and sell to the consumer. He believed that but a small portion of California extracted honey found its way to the tables of eastern consumers; it is used largely in manufacturing establishments; and, coming in competition with sugar, when the price of honey advanced above a certain figure, sugar is used instead.

Mr. Flory said that Central California bee-keepers were ready for coöperation. They were subject to low prices, high freight rates, and an unjust tare on all of their packages; upon a crate for comb honey weighing only 4 lbs. they were obliged to allow 7 lbs. tare, or an actual steal of 3 lbs.

An expression of the meeting was taken in relation to organizing on the coöperative plan; 15 arose in favor of it and 6 against, while there were several not voting. The 6 had facilities for storing their honey, and were able to keep it until their price, 6 cts. per lb., was obtained.

BEE-PARALYSIS SCARCE IN CALIFORNIA.

The next subject under consideration was bee-paralysis. The opinions upon this malady were somewhat contradictory: Locality had much to do with the opinion in relation to the cause. The fact was brought out, however, that there were but very few cases of paralysis in California. Several bee-keepers, owning their hundreds of colonies, had observed only three or four cases at any one time in their apiaries. The disease usually disappeared when new honey began to be gathered.

Mr. Touchton gave a lecture upon practical bee-keeping, demonstrating his remarks with a hive and all tools for management. There were some criticisms upon some of the methods; but on the whole Mr. Touchton, being a practical bee-keeper of many years standing, his ideas were generally indorsed.

The evening session commenced with an excellent annual address by Pres. A. J. Cook.

Several of the points brought out in the address were discussed. The so-called new bee-disease, also the controversy between fruit-

men and fruit-dryers and bee-men. City ordinances against producers selling their own products were pronounced unconstitutional.

A paper upon California bee-keeping was read by J. H. Martin, after which there was a social half-hour. The convention was favored with the presence of the Hon. J. M. Hambaugh, of Illinois, and Mr. Jacob Alpaugh, of Canada.

Wednesday morning the swarm of bee-keepers were a little tardy about convening. Mr. Mellen read a paper—Money vs. Honey. Mr. Mellen touched upon financial things generally, and thought that a better financial policy for the nation would result in financial accumulations of the bee-keeper.

The use and abuse of smoke in handling bees was next treated by Mr. Mendleson. This called out quite a lengthy discussion, all tending toward careful handling, clean hives, with a clean apiary.

The fact was also noted that bees, while gathering honey, are more vindictive than under the same conditions in the East.

The discussion led into the feeding of bees. The past season had been one in which the bee-keeper could experiment to the extent of his ambition. Honey, diluted honey, sugar (refined and raw), beet sugar, and Chinese sugar, had all been used with success. A few gave preference to diluted honey.

The methods of feeding were as various as the kinds of feed. The most rapid way to get over a large number of hives was to pour the feed into empty combs and place them in the hive after dark.

Capt. J. M. Wood next brought in an old red weather-beaten hive, and lectured upon the advantages of his method of management. His frame was about the size of the Gallup. His tools to manipulate the hive were of his own invention and manufacture. A scraper, something like an intensified putty-knife, seemed to be a very handy tool. His smoker was the old-style Root Simplicity, improved according to Wood, and in which he used a ball of sacking for fuel. His honey-knife was also constructed with an abundance of metal that would hold heat, when warmed, for uncapping combs. For heating the knife a copper boiler of unique construction was used. Upon an expression of the meeting being taken, Messrs. Wood and Levering favored the Wood system, while all of the rest of the bee-keepers favored some other way.

The Bingham honey-knife was also indorsed as the standard knife.

Mr. Cory exhibited a knife invented by himself. This was also a heavy knife, and a trifle curved at the point, long enough to uncup a L. comb at one stroke. The method of cutting down and then up was illustrated.

The question-box was at this point introduced; and in answer to the question as to the best average of honey in the best season, Mr. McKin-

tyre said his opinion was that the average for a number of seasons in the best apiaries was 75 lbs. per colony.

The afternoon session was devoted to the election of officers. Prof. Cook was unanimously reelected President.

J. H. Martin was reelected Secretary; H. E. Wilder, Treasurer.

Mr. McKinney,	Vice-pres. for San Bernardino Co.
Mr. Brodbeck,	" " Los Angeles "
Mr. Flory,	" " Kings "
Mr. Taylor,	" " Riverside "
Mr. Touchton,	" " Ventura "
Dr. Gallup,	" " Orange "
Mr. Stubblefield,	" " San Diego "

Reports of committees followed.

It was voted to pay the secretary \$25 for services.

Also voted to pay from the treasury the sum of ten dollars to the Langstroth fund. This was further increased to \$16.60 by a collection. Dr. Gallup, an old-time bee-keeper, and now living in Santa Ana, then made a few stirring remarks, proving that, though out of the business for years, the bee still could arouse his enthusiasm.

Upon motion of Mr. Brodbeck, the Central California Bee-keepers' Association was recognized as co-workers with us; and their action in sending such an able representative as Mr. J. F. Flory was commended.

The Association then adjourned to meet at Los Angeles at the call of the executive committee.

PROF. A. J. COOK, PRES.

J. H. Martin, Sec., Bloomington, Cal.

SEPARATORS.

THE ADVANTAGES IN THE USE OF NARROW SECTIONS; CLEATED SEPARATORS.

By B. Taylor.

Editor Gleanings:—I send you to-day one of the separators I have been using for four seasons. In looking over your price list I noticed that you mention a cleated separator in which the entire bee-space is in the separator, thus leaving the honey in the section two bee-spaces thicker. You will notice that my separator has



TAYLOR'S SEPARATOR.

only a half bee-space in it; and the reason for this I will tell further on. I have often put myself on record as having no use for separators, always having the combs straight enough to crate conveniently without them; and I always viewed cutting a super up into a little separate room for each section (which the separators in use did) as discommoding the bees, and I still

think so. But several years ago I discovered the great value of empty drawn combs in sections, for getting a large yield of white comb honey, and I found it impossible to get such combs filled and capped evenly enough to make their use possible. So I began to experiment on a separator that would obviate the objections I had to those in use. I wanted a separator that would leave a free passage for the bees, in the center between each section, and thus avoid partitioning each section off by itself, with a solid partition wall. This I accomplished by making the separators of two thin strips, and cleating so as to leave a scant $\frac{3}{8}$ space or slot between them lengthwise.

Now, there was another thing I wanted; and that was, to use narrow sections—some not more than $1\frac{1}{2}$ inches wide. I had been using these narrow sections for twelve or fifteen years, and I liked them so well that I could not think of abandoning them. I had changed all my supers so as to use sections 4×5 inches, and $1\frac{1}{2}$ wide. These sections, when filled without separators, come nearer a pound than any others I ever used; and let me say here that narrow sections will vary far less in average weight than wide ones. But my narrow 4×5 sections, with separators between, so a bee-space would have to be taken from both sides of the combs, would leave them but one inch thick, and they would not weigh $\frac{3}{4}$ of a pound, and this would not do. So I began to study a way out of the difficulty. My first thought was to cleat the separators like yours, with a whole bee-space in the separators; but from theory alone I saw this would not do, for two reasons. First, the combs would have $\frac{1}{4}$ inch added to each side, and would weigh more than a pound. I could have remedied this by making the sections $1\frac{1}{4}$ inches, or less, wide; and as I loved narrow sections I would have gladly changed in that direction; for with the whole bee-space in the separators I could have all four sides of the section the same width, which would be an advantage; but the second reason could not be settled so easily; for, with a full bee-space in the separators the combs would be built as thick as the sections were wide. The edges would be built right up to the cleats on the separators, and would be sealed more or less to them, and would break the cappings on being removed. I tried enough to know that this one fault would render separators with full bee-spaces in them impractical.

There is another objection that would prevent their use. The combs being as thick as the sections, in crating, the surfaces of the combs would touch together, chafe each other, and start the honey to leaking. With the aid of the comb-leveler I could dispense with separators in using drawn combs in sections; but I have now used them, like the one I send you, four seasons, and I like them so well I probably shall never fill another super without them. I

do not use them between every section—only between every two. This gives perfect sections that weigh a scant pound each when filled. The honey on both sides of the section comes within $\frac{1}{8}$ inch of the edge of the section, and is never broken in removing the separator, and the surfaces are $\frac{1}{4}$ inch apart in crating. In crating sections filled between common flat separators, the surfaces of the combs are $\frac{1}{2}$ inch apart, and require a larger crate for the same number of pounds.

You will, no doubt, ask why I make my separators $\frac{3}{8}$ thick. I tried thin ones of wood, and the bees soon gnawed and spoiled them. Those $\frac{3}{8}$ thick cost but little more, and, made like the one sent, will, with proper care, last a lifetime, and prove cheap indeed.

I see narrow sections are attracting the attention of bee-keepers. They have so many good points, when tried, that they will yet cause the $4\frac{1}{4} \times 4\frac{1}{4}$ section to be abandoned, for they are too small to hold any thing near a pound, if only $1\frac{1}{2}$ inches wide, and this is the extreme width of the coming section. The combs are fastened to all sides of $1\frac{1}{2}$ sections much better than to wide ones, and ship more safely with the separator I use with its slotted center, so the bees have free passage from comb to comb, without having to leave passages in the corners of the combs; and with narrow sections the combs are made solid to every side, and nearly every cell will be sealed; and these sections, with their larger surface, and filled to $\frac{1}{8}$ inch of their edges, solid fast on all sides, and every cell sealed, make a section that leaves the wide $4\frac{1}{4}$ section, with its sunken surface and imperfect capping and fastening, far in the shade.

Some years since, Mr. Keys, of the firm of James Fornerook & Co., visited the Forestville apiary. I took him into my honey-house, and showed the well-filled sections of $4\frac{1}{4} \times 4\frac{1}{4}$ size, $1\frac{1}{8}$ inches wide, and the $4 \times 5\frac{1}{2}$ sections, and he agreed, without argument, that the latter made a much finer appearance, and looks go a long way in selling comb honey. So impressed am I with the superior advantages of the larger and narrower sections that I would not accept as a gift a future supply for all time of $4\frac{1}{4} \times 4\frac{1}{4}$ and $1\frac{1}{8}$ sections.

Forestville, Minn., Jan. 22.

[I am well aware that there are advantages in the use of narrow sections. The combs are filled out better, honey ripened perhaps better, and customers will take them, because, while they appear to be as large as the regulation $1\frac{1}{8}$, they are cheaper. In Canada, the 7-to-foot and $1\frac{1}{2}$ section rather take the lead; in this country, $1\frac{1}{8}$; in England, full two inch, but all $4\frac{1}{4} \times 4\frac{1}{4}$ in size. But you probably do not overlook the fact that, while you may be able to get more for your 4×5 sections, as a general rule they list in the market quotations, or did so, at least, until they were driven out of the market, from one to two cents lower than the regular $4\frac{1}{4}$ size.

I believe your separator is a good thing. It

certainly would greatly improve the T super; but cleated separators, you are probably aware, are not new. In Nov. 1st GLEANINGS, 1888, p. 833, Oliver Foster set forth their advantages. His article was accompanied with an engraving which, for the convenience of our readers, we now reproduce.



You will notice it is not exactly like yours, but it embodies the same principle. The cleats on both sides are half a bee-space thick.

Mr. J. E. Crane, of Middlebury, Vt., is another bee-keeper who has been enthusiastic, I believe, in the use of the cleated separators. When I called on him in 1890, on that bicycle trip, he showed the advantage of this sort of separator in connection with sections having no bee-ways or openings, the bee-spacing being entirely provided for by separator-cleats.—[Ed.]

CALIFORNIA ECHOES.

By Rambler.

At the recent California State convention of bee-keepers, Prof. Cook called out quite a number of test votes. In the use of quilts of various kinds over the frames, 19 had used them, and now only 9 of the 19 use them, showing that 10 had discarded the useless, mussy things.

California bee-keepers are invited to make exhibits of their products in the Chamber of Commerce. An attractive display here of several feet of floor space would be a standing advertisement of California honey. People from all portions of the earth are visiting the Chamber daily.

The bee-escape was considered not so much of a success here in clearing an extracting-super as it might be. The escape clears the super of bees; but the honey, deprived of its warming factor, gets cold during the night, and is extremely hard to extract. What we want is something to clear the super as quick as a brush would do it, or from three to five minutes.

Mr. Brodbeck had one of his hives in the Chamber of Commerce. Mr. B. has taken a step in the right direction. He uses the Dove-tailed hive with Hoffman frame; but hive and frame are shallower than the standard, by an inch or more. That's right, Mr. B. You will soon progress to the use of the shallow divisible brood-chamber.

The rainfall up to date in the San Bernardino Valley amounts to 17 inches. This, with a few inches in March and April, will probably insure a honey crop. But even after profuse rains, there are sometimes climatic influences at work to prevent the secretion of nectar. These extraordinary influences, however, appear so seldom that plenty of rain gives great buoyancy to the spirits of the bee-keeper.

"Skim-milk queens" was a very happy term applied by Mr. McIntyre to those queens reared under the forcing plan, and where the royal jelly is thin and scarce. Skim-milk queens and successful honey production do not work well together.

In this valley, thousands of acres will be planted to what has hitherto been considered a worthless plant—canagrie, with the newly discovered tanning properties. Reliable authority claims that it does not yield honey. Perhaps, with thousands of acres, the bee will find a sustaining forage upon it.

In these days of foul brood, bee-paralysis, etc., it behooves bee-keepers to be very careful about introducing queens, honey, or second-hand hives into or near their apiaries. Our most successful bee-keepers breed nearly all their own queens, and would not feed honey bought up promiscuously, under any consideration. A pastor of a Disciple church informed me that such a purchase of honey, and a feeding of it, inoculated his whole apiary of 50 colonies, and he lost them all. His experience was brief but pointed—spent 400 dollars on bees; never received a cent in return. Moral: Be careful what you feed your bees.

RAMBLE 128.

AT BLACK DIAMOND.

By Rambler.

Mr. Jones, collector for the Pacific Gas Improvement Co., a few evenings after our call upon his quarrelsome bees, reciprocated, and sat down with us by our camp-fire. We found Mr. Pryal an adept at keeping up the flames. We had been chaffing him some about the raw and foggy condition of the nights around the Bay, and had urged him to visit the more salubrious clime of our sunny Southland. Of course, like a true native son his Oakland possessed the best climate in the world; and then he would emphasize his remarks by throwing another armful of brush on the fire. Where nature requires so much aid in August to keep up a comfortable warmth, it is indeed pleasant to find such an efficient helper.

Around the fire the conversation circled; and bees, best locations, hunting deer, bear, and even hogs and their profitable culture as a side issue with bees, was discussed. Mr. Jones thought a hog-ranch out in the free air of the country preferable to those everlasting side-walks and tall brick buildings. A good apiary in connection with it would just profitably round out the season.

Pryal and Wilder held a grand idea that, when prices in pork and honey ruled low, the hog might be raised profitably for its bristles. For instance, a tooth-brush is sold for 15 cents and upward; a good-sized hog, with his back well cultivated, would yield bristles for a

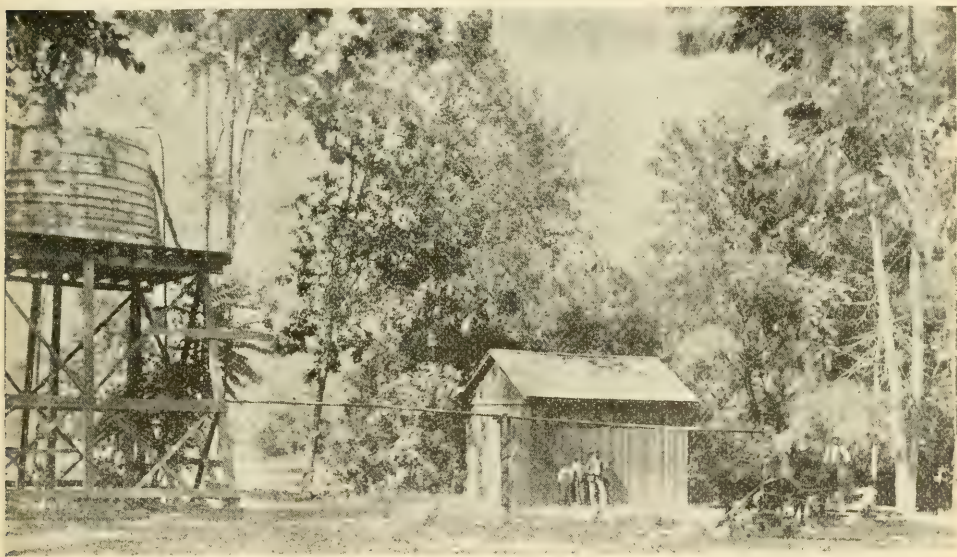
thousand tooth-brushes. In view of the bonanza before us I had only one suggestion to make; and for the moment I was inspired to put it into rhyme, as follows:

That is right, Bro. Pryal;
On the fire put a log,
And by the cheerful flames
We'll view the festive hog.
You may make him into bacon,
Or fry him in the pan,
Or his bristles use for brushes,
But here's a better plan:
Your highfalutin schemes,
Like mice and men, will fail,
Unless advice you take—
Make whistles of his tail.

This ended the hog discussion for the evening, and our convention resolved to adjourn. It

As we climbed and climbed the moderate mountains, the landscape grew behind us, and we were soon at such an elevation that the cities, the bay, the islands within the bay, the Golden Gate, and the broad ocean, were spread out before us in one grand panorama; and when we consider that a genial clime touches with its magic wand the vegetable world, and gives one round of growth and bloom from one end of the year to the other, it is no strange thing that people enthuse over the wonderful climate of California.

We are now in Contra Costa Co., and we drop down on the north side of the mountains; and 18 miles from Oakland we halt for a few days in Walnut Creek, a pleasant little town. Hard times seemed to be knocking at the doors of the majority of the people. The saloons, how-



PUMPING WATER TO SPRINKLE THE HIGHWAYS.

was hard upon 12 o'clock. Mr. Jones disappeared in the darkness with a kind farewell, and we made an opening in the fog and sought our tent.

The days sped by so full of duties and pleasures that a week elapsed ere we were again ready to proceed on our journey. Our evenings of social converse with bee-keepers, and especially in the Pryal home, when the family gathered around the hearthstone, and, aside from the words fitly spoken, there was vocal and instrumental music in the air—those evenings will not soon be forgotten; and on the 11th of August, when we took our departure, and climbed the hills that rise abruptly in the rear of Temescal, I cast glances below and exclaimed in heart-felt tones, "May the shadows of all the Pryals never grow less!"

"Amen!" says Bro. Wilder.

ever, seemed to be doing a good business—even better than the churches. Spending Sunday in town I patronized the little M. E. church, and found 40 in attendance. At the close of the services there seemed to be a greater crowd and more lively times around the saloons. The pastor was young and earnest, and dispensed the word with ability. Still, there was apathy in the outside crowd, that left the church with a meager attendance.

Spaniards and Portuguese were numerous here, and the Spaniards often indulged in a barbecue. We camped near the scene of their festivities. In a shady nook on the banks of the little creek the Toro Club assembled occasionally to eat the face off a bull's head and crack a few bottles of vino.

The master of ceremonies, the barber of the town, came around to prepare for one of these

gatherings. We had noticed a deep hole in the ground near the creek, and curiously wondered what it was used for. It was 4 feet deep and 3 feet in diameter. Our barber built a fire in the bottom of the hole, and kept feeding it with hard-wood chunks until there was a thick bed of coals. A bull's head was then carefully rolled in a burlap sack, and dropped upon the coals. Immediately the head was covered with dirt to the depth of about three feet. From 16 to 24 hours was considered long enough to cook the head. It was then taken out piping hot. The Toro Club would assemble around a rustic table, under the walnut-trees, and enjoy the festal board.

Our camp was furthermore enlivened by its proximity to the cooler, made necessary by the aforesaid saloons. The cooler was very appropriately located near a huge water-tank. It was the duty of the waterman to put his three docile horses to the turntable pump and fill the tank regularly every day, and as regularly every night deliver it to the thirsty and dusty road all about town.

There were no bee-keepers here to enliven our evenings, and with whom to trade jokes. We longed again for Bro. Pryal's camp-fire and Bro. Jones's enthusiasm. We knew, too, that they would enjoy the numerous mosquitoes just as we did. We realized the full beauties of cool foggy nights, for the result was fewer mosquitoes in Oakland, and a double portion in Contra Costa Co.

When the days were fulfilled for us to move along we left Walnut Creek in peace, and next surprised the town of Black Diamond. This queer little town is located on the Suisun Bay, at the point where the San Joaquin and Sacramento Rivers mingle their chocolate-colored waters. We expected to cross the bay immediately; but the town was so inviting we resolved to stop a few days. The streets were not as inviting as they are in some towns in which we have been; for numerous pigs, goats, dogs, and urchins ran at large, and preyed upon the unsuspecting camper. Black Diamond, as the name suggests, derives its name from coal-mines in the hills beyond; but the mines have been paralyzed by a ten-years' litigation. Salmon-fishing, however, is a flourishing industry, and several score of Italians reside here, and daily mend their nets, and nightly go forth to swoop in the fish, which they do by the boatload. Canneries dot the shores of the bay, and the business of putting salmon in cans is nearly as honorable as the production of honey. The Dagos, however, even if they did come from the land of our gentle Italian bees, have not

that sweet disposition so characteristic of the American bee-keeper. The Dago wives are sharp-tongued, meddlesome, and saucy. Their pigs, their goats, their urchins, and mosquitoes, were ditto. Saturday night the fishermen all came in for a grand pow-wow, more than less; wine was guzzled, and Italian language was slung through the air in volleys, salvos, and broadsides. We know, for a whole brigade of Dagos hung to the fence near our tent, and fired words at each other until one volley knocked a fellow over our tent-rope. Well, now, wasn't there music! Our lantern came rattling from its hook; Wilder yelled, and I did. The meeting outside was broken up in confusion, and the participants scattered to the four winds of Black Diamond. One of the



DAGO FISHERMEN AT BLACK DIAMOND.

Dagos was, however, polite enough to hug himself into a comfortable feeling. He came back and apologized. He explained a fact that we already knew—that the rest were all drunk. Between Dagos and mosquitoes, we slept but little that Saturday night.

Sunday I found peace and quiet in the little Congregational church. A young and earnest pastor preached a helpful sermon; but his audience was small, and the cause languished. On the public square, in sight of our camp, however, that afternoon times were very lively. There was a baseball game, and a hundred and fifty people in attendance.

Contra Costa Co. can not be classed as a honey-producing locality. About the only bees we find are in nondescript hives, and few in number. Mount Diablo (devil) in the eastern portion of the county should bear upon its sides a rich honey-flora; but from its name, or some other cause, Mount Diablo is not worth much if any thing, in a practical way. There are, no doubt, good locations along the San Joaquin River which could be made profitable with fruit-raising. That these places may soon be occupied by some happy bachelor is the wish of the Rambler.

T SUPERS.

WHY BETTER THAN SECTION-HOLDERS OR WIDE FRAMES; THE PROPER WAY TO MAKE A T TIN.

By A. B. Anthony.

I have produced comb honey in several styles of surplus-cases; and if I could have the T tins made as I like them I should like the T super best. Two-tier wide frames are away behind, because the valuable feature of tiering up is lost. Single-tier wide frames are good, but they can be rigged for only one width of sections, and then if made for separators they can not well be used without. Pattern slats, or bottom-bars, are a slight disadvantage because they place the sections that much further away from the brood-chamber. Could they be above the sections their clean tops would be valuable. As for the bottoms, no one hardly ever sees them.

T tins as I use them are fastened permanently to the crates. Simplicity should be the rule with all fixtures a bee-keeper has to deal with. Section-frames make extra pieces: separators, that many many more. Some think that shifting section-frames will pay: I think not. I used to do that too, but don't any more. A super should be suitable for sections open on all four sides.

We, the majority of bee-keepers, I believe, have always been wrong in the use of closed-end sections and open-end brood-frames, where we should have had open-end sections and closed-end frames.

I think, also, that those of us who use separators, and get ordinary prices for our honey, do so at a loss. One great trouble is, that we use sections that are too wide. The T tin that I think would be more suitable would be like the diagram above. The worst trouble with the old T tin is, that the rounding at the point 1 took up so much room as to separate the sections. The T form is a strong one. By using thin tin, and bending as I suggest, it would leave hardly a visible space between sections when compressed. Also, the points 2 2 would not form cutting edges for hands and fingers, and would never become bent out of shape as much as the old kind do.

I hope, Mr. Root, I am right in the above, and that you can see it so. Of course, a new machine would have to be gotten up to bend this form. If some of your help could turn out one to make these tins I should be pleased to have it so; and if they should fail, and you really felt that you wanted one, perhaps I could try for you.

Coleta, Ill., Dec. 17.

[So few, comparatively, use T tins now that it is a question whether it would pay us to build a new machine to make the tins as you recommend, providing we admit that they are better when so made. Of course, I see that it might be an advantage to have the point 1 as thin as

possible; but there is no reason why it can not be just as thin when constructed the usual way. On the other hand, are we sure we want them thin or flat at the upright? If we could reduce it to nothing, it would be desirable. As we can't, is a thickness of $\frac{1}{32}$ any worse than $\frac{1}{64}$? and is it not true that separator stuff will close up a space of the former on top of the sections better than in the latter? How is this, Dr. Miller?—ED.]

TIERING UP FOR COMB HONEY.

SHALL A SUPER OF EMPTY SECTIONS BE PUT UNDER OR OVER ONE WITH SECTIONS PARTLY FILLED?

By John Handel.

Editor Gleanings.—At last Dr. Miller knows (see *Stray Straws*, p. 8), where he says: "The abuse of a good thing is no argument against its proper use. Like John Handel, p. 944, I've coaxed bees up into the eighth" (I said sixth) "story, and had all unfinished sections; but, all the same, when I'm pretty sure bees will fill a second super, I put the second one under. If doubtful about both being filled, I put the empty one over."

Now, why does Dr. M. "allee samee" waste his strength lifting heavy supers off the hive and on again? We will take "don't know" for an answer, doctor, but give us a reason if possible. I know the practice is backed up by age, and numerous followers, but that is no evidence of truth. We should prove all things and hold fast that which is good. I have proven (to my satisfaction at least) that bees will commence work in the second super as readily if put on top as under the first. I gave the readers of *GLEANINGS* the benefit (if any) of my experimental labors. Now let us see if they are backed up by reason.

It is evident that the heat escaping from the brood-chamber will accumulate in the top of the hive, and that the wax-workers require this heat most; and, again, that most wax work is wanted in the empty super. Therefore if Dr. M. has as good reasons for creating that unnatural vacuum between the surplus and brood, let him trot them out. I use starters only in the sections, and like to put a few drawn combs (extending well down to the bottom) in the center of the super. It seems to induce the bees to go upstairs sooner; but such ladders don't appear to be necessary for any but the first story, or after they have acquired the habit of going up.

I am experimenting for my own benefit; therefore when I get something good, and offer it to the public, they should make allowance for the difference in the management, location, etc., and not expect to reap large benefits without testing the plan for themselves. For example, in this case of tiering up, most if not all producers of comb honey have a horizontal bee-space between every super. I have gradually discarded until that between surplus and

brood-frames is all that I can tolerate. Those horizontal loading-halls undoubtedly hinder, and may be the sole cause of their halting between two opinions until necessity or the bee-keeper (by putting the partly filled super on top) compels the bees to reach up overhead and draw themselves through those imported spaces.

There, now, I've given Dr. Miller another chance to say, "All the same, I want a bee-space between the supers," and probably a majority of bee-keepers will always tolerate the nuisance because of some advantages, and also trouble of making the change in the surplus-arrangements. But the specialist, who manipulates not for pleasure, but for the money there is in it, will shut down on those promenade-halls, and keep his bees inside of the sections, where they will be useful, instead of scrubbing and daubing the top of every section. If those who do not enjoy lifting supers off and on again, and those ready to crawl out of that horizontal rut are of sufficient number to warrant space for a description in GLEANINGS, I will explain how they can test the principle, with but little expense or labor.

Savanna, Ill.

[Dr. Miller replies:]

WHY THE EMPTY SUPER SHOULD BE PUT UNDER; THE PHILOSOPHY OF HEAT RISING, ETC.

In the first place, friend Handel, I don't lift *heavy* supers off the hive and on again. They're only about half full, and weigh somewhere in the neighborhood of 15 pounds. But I suspect there isn't as much difference in the amount of strength laid out as you suppose, between your way and mine. Let us compare.

Suppose on the same date you and I have each a hive on which there is a super half filled, ready for an empty super to be added. I go to mine, lift off the half-filled super, put on the empty one, then lift back the half-filled super. You simply put the empty super on top, without touching the half-filled one. Now we'll go again when the first super is ready to take off, the second one being about half full. You lift off the half-filled super, take off the full one, then put back the half-filled one. I take off the full one without touching the half-filled one. So you see the labor exactly balances. You do the extra lifting one time, and I do it the other. That's on the supposition that we know, without looking, just when the full one is ready to take off. As a matter of actual fact, we don't know when the full one is ready to take off, and a good many times look at it only to find it not yet ready. At such times you have to lift off the partly filled one and then lift it back, whereas I have no lifting to do. That makes my way appear to have less lifting than yours, doesn't it?

So my answer to your question, why I waste my strength "lifting heavy supers off the hive

and on again," is because I don't know any other way that takes so little lifting.

You have proven to your satisfaction that bees commence work just as readily in the second super if it be placed on top as if placed under. Others have proved equally to their satisfaction that bees will commence always as readily, and generally more readily, in a super placed under. So the only thing is for one to practice one way and the other to practice the other way. Only the beginner, until he has had experience of his own, will do well to follow the practice that has been found best by almost all, for, as you say, almost all raise the partly finished super and put the empty one under.

You want me to trot out my reasons for creating that unnatural vacuum between the surplus and the brood, if I have any "as good" as yours. All right; I'll produce the best trotting stock I have. But, first, suppose we take a look at the teeth of your trotters. "The heat escaping from the brood-chamber will accumulate in the top of the hive," and so the wax-workers, which need heat, ought to be there. Granted that heat rises, does it accumulate? Right by where I am now sitting is a small register which lets the heat up from a fire below. When the register is open, allowing the hot air to rise through it, the metal becomes so hot it burns my fingers. Now close the register and let the heat "accumulate." Does the metal get red hot? On the contrary, it becomes quite cool to the touch. Don't take things for granted, but "prove all things," and then you'll not think the second super is warmer than the one under it. Heat rises from a stove, and it's warmer at the ceiling than down at the floor; but hold your hand directly over the stove at the ceiling, then lower it, and you'll find the heat becoming greater the nearer you approach its source. So, the nearer the brood-nest (the source of the heat) the warmer you will find it. All the heat that's in that upper super must come up through the under one; or, to put it another way, the upper super gets its heat from the one below it, and it is not likely to be warmer than the one from which it gets its heat.

Now as to that "vacuum" business. My reason "for creating that unnatural vacuum" is that bees, like Nature, "abhor a vacuum," *provided* the vacuum be between two parts of their work. So when the vacuum is "created" they hustle to get it filled up. But how much less vacuum do you have than I? When an empty super is put on, isn't there just the same vacuum in it whether it be over or under the previous one?—only create your vacuum outside of the space occupied by the bees, and they'll not go up for the sake of filling the vacuum, but simply and solely because they are crowded for room. With your plan the bees leave home and friends to commence in a new spot at the top of an empty super; whereas

with my plan they commence work right under and close to the bees at work above them.

And just that difference between commencing promptly in the second super, or waiting to be crowded to it, may make the difference between filling up the second super and swarming. The thing desired is to get them at work promptly on as large a surface as they will profitably occupy, and yet not have them commence work on more than they will finish up in good shape. If they commence work on five supers, and have material enough to fill only three, we may expect a large proportion of unfinished sections, if, indeed, any of them are finished. But equally we'll have unfinished sections with only one super on, provided there is not honey enough to fill it. The bee-keeper must use judgment, in an ordinary season getting the bees to occupy a goodly number of sections early in the harvest, and crowding as much as possible toward the last.

That bee-space between supers, to which you object, is in some respects objectionable, but nearly every one submits to it rather than submit to something worse. At different times it has been discarded, only to be taken up again after trying some other way. A quarter-inch space between two supers is a bad thing; but no space at all is still worse, I think, in the judgment of those who have thoroughly tried both ways. But if you like to have one super jammed down on another, to be glued together by the bees, with the chance of mashing bees between the two, there's no law in Illinois to prevent it.

Marengo, Ill.

HONEY AS A DIET.

WHY IT IS NOT EATEN MORE; HOW TO DEVELOP THE HOME MARKET; IS GRANULATED SUGAR ADULTERATED?

By C. Davenport.

I was interested in reading your article, "Honey as a Diet," page 92; but I disagree with you on some things. First, you say we have a good deal of prejudice or distaste for honey, real or fancied, to overcome. I have sold a good deal of honey, and it has been seldom that I found any prejudice or distaste against it; and when I have, generally it was caused on account of their having had some poor or inferior honey before. A good many bee-keepers, instead of doing any thing to increase the sale of honey, are doing more to injure it. These are mostly the ones who do not take a bee-paper, and you can not get them to subscribe for one, because they know all about the business. With them, any thing gathered by the bees is honey, and is sold for what they can get; and if they can't sell it all in the fall, most of them will put it in the cellar, where it often becomes sour, and even

moldy. It is then put on the market in the spring; and the consumer who buys a few pounds of this is not very anxious for any more. But with a very few more seasons such as we have had for the last three or four years, this class of bee-keepers will be pretty well done away with around here, and I think in many other localities as well.

Again, you say that many persons do not like honey. Of course, there are some who do not; but in all of my experience I have found but very few who did like good honey. I have found quite a number of persons who liked it, but could not eat it, as it did not agree with them. In regard to the family you have mentioned, who are able to have most of the luxuries on their table that can be bought, but seldom use honey, I wish there were a good many such families around here. There used to be a good many such here, but most of them are now my best customers. Let me describe one case.

A few years ago I went into the store of a prominent merchant in a neighboring town, and asked him if he used honey. He said he did not. They used to sell it in the store, but it was always dripping and daubing every thing up, and he did not want any thing more to do with it. He did not like it himself, and none of his family cared much about it. I told him I should like to have him try some of *my* honey. He asked me how I sold it. When I told him 17 cents a section that would weigh nearly a pound, he said he could buy all the honey he wanted, for a shilling a pound. I then asked him if he bought butter, and what he paid a pound for it. He said butter was worth from 10 to 20 cents per pound, according to what it was.

"Well, Mr. W.," said I, "there is as much or more difference in honey than there is in butter. Now, I am going to leave you a case of honey; you try one of the sections, and if you do not like it, it will not cost you any thing. I will be around again in two or three weeks, and will take away what you have not used or do not want."

This was white-clover honey, and it was very nice. It was packed in cases that held 24 sections. When I saw Mr. W. again he asked me if I had any more honey like that I had left before. On my replying in the affirmative he said he would like two more cases just like the first one. He has bought three cases of me each year since. He has quite a large family, and is well able to pay for what they like.

Of course, some years we do not get much clover honey, and some seasons we get none at all; but there are other kinds that are good, such as basswood, goldenrod, aster, etc.; and I find many people who prefer some of these kinds to clover honey; and if one works up a large home trade, and secures 100 or more regular customers, he can dispose of a good deal of

honey, and realize much more from it than by shipping it to large city markets; and in my opinion there is no better way to increase the use of honey than for each of us to thoroughly develop our home market. It may surprise you when I tell you that I have some regular customers, private families, who buy over 100 lbs. each year; but I have a number of such, and expect to keep them in spite of the fact that sugar and syrups are cheap.

ADULTERATIONS IN SUGAR.

The truth of the matter is, molasses and syrups of all kinds, at least such as we get here, are adulterated so that they are not fit to use, and most of the people around here have found it out. Here we can also buy a large pailful of jelly for a few cents. I do not think such things injure the sale of honey much if any; for after one has eaten such stuff a short time he prefers to buy honey, even if it does cost more. Most if not quite all kinds of sugar are adulterated. Almost every one seems to think that granulated sugar is pure, and that granulated sugar is always alike. As you undoubtedly know, there are various kinds or brands of granulated sugar; and while I have no doubt that they are all adulterated, I know some kinds are more so than others.

Now, I do not think that I have ever seen any honey on the table at a hotel; but I do not think this is because it would not be eaten if it were there. Last fall I took the train one day and went to a near town where I sold some honey by sample. I sold one 24-lb. case to a hotel-keeper; and when I delivered it I went into the office with it, where the proprietor and a number of his boarders were. I started to tell him I had brought the honey he had ordered; but he did not let me finish. He hurried me right through into a private room with it. I do not think he wanted his boarders to know that he had bought any honey. Very likely this was not put on the public table. But if it was, I have no doubt it was eaten in preference to molasses or syrup.

Southern, Minn.

[The article on page 92, calling forth this, was not written by me; but as no name of any kind was attached to it, Mr. Davenport very properly thought it was written by one of the editors. The name, a *nom de plume*, was left off by oversight. It should have been credited to "Novice."

This matter of developing a home market is a good one; and our correspondent's scheme, while by no means a new one, of leaving a fancy article to sell on its merits, is most excellent.

As to adulterations in sugar: We have been taught for years that granulated sugar could not be successfully counterfeited, and that, therefore, it was always pure. From time to time, reports from the Chief Chemist, at Washington, showing an analysis of the foods commonly adulterated, have come into my hands; but among the long lists therein I do not remember to have seen granulated sugar. I think our correspondent is mistaken in thinking it is ever adulterated. The brown sugars

may be and probably are adulterated more or less. I wish some expert on sugars would enlighten us on these points. See Editorial.—Ed.]

PROFITS IN THE GROWING OF ALSIKE.

HOW 30 ACRES YIELDED OVER \$1000.

By Frank Coverdale.

Mr. Editor:—It appears to me that more should be known about the cultivation and growing of alsike clover for profit. My eight years' experience with it has most decidedly prompted me to raise more each coming year.

I first began sowing it with red clover and with timothy, and afterward by itself, which has proven more profitable than any grass or grain crop on the farm. Perhaps some one might say, "How do you know?" I answer, "Because I have kept an account, and know whereof I speak."

One year I cut and thrashed 8 acres. It yielded 4 bushels per acre, and it sold for \$10.00 per bushel, and the net value was close to \$40.00 an acre for the ground on which it grew. To be sure, clover seed was high that year.

Now I wish to tell the readers of GLEANINGS what the income of 30 acres of alsike will do for me this season. I cut it when the seed was ripe, stacked it up nicely, and green as tea leaves; hulled it, and got 90 bushels of nice seed. It yielded 4 stacks of good hay, or about 40 tons, this very dry season. It is all fed to the cattle at this date; 72 of 1080 steers lived from the beginning of winter with nothing else in the way of hay up till about Feb. 1—nearly half the winter. With the above was fed each day 8 bushels of corn, and the steers look fat and plump; in fact, I feel really enthusiastic over the matter; and a better aftermath I never saw grow.

Now let us count the profit: 90 bushels of seed, we will say, will net at least \$540.00; 40 tons of good hay, \$240.00, or a total of \$780.00, saying nothing of the after-growth—\$26.00 per acre at least—a far better showing than the average cornfield, even when corn is selling at 40 to 50 cts. per bushel. The clover has left the ground in the best possible shape to grow corn or any other cereal that grows here.

Now, kind friends, I have told you how it has profited as a stock-raiser; but let me tell you that, had it not been for the alsike bloom this last season I could not have sold \$250.00 worth of honey. So it will be proper to add the above profit from honey to the proceeds of alsike, which would count up to \$1030. Can another do likewise? I would most assuredly say yes; but, let me add, try all new things on a limited scale, and hold fast to that which is good.

Delmar, Iowa, Feb. 9.

[Farmers are complaining of the low prices of the ordinary produce. Let some of them

turn their attention to alsike. It is hardly probable that all will do as well as for friend Coverdale; but the experiment, at least on a limited scale, will be worth the trial.—ED.]

HOW I MET A. I. ROOT IN THE PINE WOODS OF FLORIDA.

"WE MET BY CHANCE," BUT NOT "THE USUAL WAY."

By Thaddeus Smith.

I first became acquainted with the name and writings of A. I. Root some 25 years ago, when he was a correspondent of the old *American Bee Journal*, then published in Washington, D. C., and wrote over the *nom de plume* of "Novice." This was before GLEANINGS was probably ever thought of, and before A. I. R. had any idea of going into the manufacturing of bee-keepers' supplies. Being very much interested in Novice's letters I found out his true name and address, and had a short correspondence with him. When the publication of GLEANINGS commenced I became one of the first subscribers, and an occasional contributor; and, having read GLEANINGS ever since, and being personally interested in the subjects its editor treated—bee-keeping, gardening, morality—it was but natural that I should become personally interested in its editor and his work and his family; and yet in all these years we had never met face to face. It has long been my desire to visit the Home of the Honey-bee, that I might become personally acquainted with the Roots and their associates, and see their interesting establishment. It is not very far from my home on Pelee Island, in Lake Erie, to Medina; but something has always been in the way of my getting started there.

In November last I left my island home to spend the winter in Kentucky and Florida. I saw in GLEANINGS that A. I. R. was also going to Florida. He was to start earlier than I intended, and he intimated that he would go on to Cuba, so I had no expectations of meeting him. I started for Florida Jan. 22d; but before I started I copied from GLEANINGS the names and addresses of several Florida correspondents. I had no special business with these bee-keepers; but I thought that, if I should go near them, I would call, as I generally find them congenial companions. Among these names was that of Charles Norman, of St. Petersburg.

I spent three weeks on the east coast, from Jacksonville to Palm Beach on Lake Worth. I then made my way across the State to Tampa, my objective point being Tarpon Springs, where I had an engagement to meet some Kentucky friends. To get from Tampa to Tarpon Springs, it was necessary to cross the bay to St. Petersburg to get to the railroad, and then I had six hours to wait for the train. To pass

the time, and see if there was any thing there of interest, I took a walk with my daughter, who is traveling with me; and as we passed the postoffice I said to her that I knew of a bee-man living there, and I would inquire for him. "Yes, I know Mr. Charles Norman," the young man said. "He lives ten miles out in the country."

Seeing a livery-stable on the opposite side of the street I crossed over and asked about Mr. Norman. I was informed that they had just sent a man out to Mr. Norman's. It was only seven miles, and he would take me out for two dollars. I did not think that I wanted to see Mr. Norman quite that bad, but felt curious to know who the man was that had just gone to Mr. Norman's, and concluded it must be some bee-man with whose name I might be familiar, and I went back to the hotel to consult the register. To my surprise and delight I there found the names "A. I. Root and daughter." The clerk said the gentleman had gone out, but the lady was in the house. I told my daughter, and sent her upstairs to hunt up Miss Root, and she brought Miss Constance down, and we very soon became acquainted. Didn't I know her as "Blue Eyes" when she was a laughing, romping child? know her as a college student? know her as the musical genius who handled the violin and the bow? know her as the business young lady, the stenographer and "pretty typewriter"? Of course, I did; but we had never met before, and there she now stood, looking just as I expected to see her—blue eyes still. She said it was doubtful about her father coming back that night. My only chance, then, of seeing A. I. R. was to follow him up, and I hurried back to the stable and got a rig as soon as possible, and struck out upon a "trail" (they have no roads in Florida), through an uninhabited pine forest, for Norman's. When we had gone some six or seven miles we met the other buggy returning. I had seen some pictures of A. I. R., and had so often in fancy pictured him in my mind that I flattered myself I should know him wherever we might meet. But the little thin-visaged man, with short gray (nearly white) beard, with a brimless *fur cap* on (down here in Florida), and his coat buttoned up tight around his throat—this man whom I was meeting, sitting in a buggy by the side of a broad-faced colored boy—did he look any thing like the A. I. R. whom I expected to meet? Not much. But as my driver said that he was the man he had sent out to Norman's, it could be no one else. I jumped out of my buggy, and stepped forward to greet him. I asked if he did not know me. I knew, of course, that he did not, for we had never met before. When I handed him my card, the name seemed familiar to him, and I invited his colored driver to get out and give me his place. As we drove through the lonely pine woods back to St. Petersburg, you may be sure I had a visit with

him that I greatly enjoyed, and shall never forget.

But our ways diverged, and the time for separation soon arrived. Miss Constance was not going with her father, but would go on the same train with me to Tarpon Springs, where I had expected to meet her and have the pleasure of getting better acquainted with her, and of introducing her to a number of my friends; but when I went to look her up next morning I found that she had left the place.

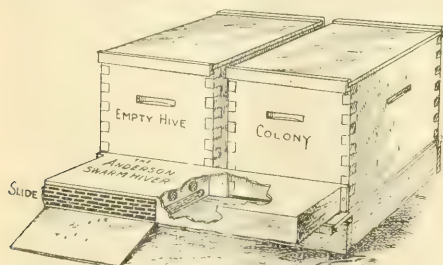


THE ANDERSON SWARM-HIVER.

By Louis Anderson.

In the spring, or before the swarming season, prepare a hive-stand large enough to hold two Dovetailed hives placed side by side, and two inches apart. Place the colony of bees upon the left end of the stand, and an empty hive on the right (the bee-keeper is supposed to be standing in front of and facing the hive.)

As the swarming season approaches (say from the first to the tenth of May), reverse the hives, placing the empty hive on the left and the colony on the right, taking care to have the front of the hives on a line with each other, and about two inches apart; then set the swarm-hiver upon the alighting-boards and fasten with a screw through the blocks on each end of the hiver, and screw up tight. If the hives stand upon a line, there will now be no



outlet for the bees except through the hiver. Now close the entrance to the empty hive by placing a wood strip large enough for the purpose against the entrance upon the inside of the hive, to keep the bees out until they have become accustomed to the hiver, which will be after the first day. As soon as they have become accustomed to the hiver, remove the strip and put in frames of empty comb or foundation, and the hive is ready for swarms. A small alighting-board should be placed from the entrance to the ground, for the bees to alight upon. If the hives are placed well to

the front of the hive-stand when first placed, and well to the rear when reversed, the entrance to the hiver will be very near where the entrance to the colony was before the hives were changed.

OPERATION OF THE SWARM-HIVER.

When the swarm issues, the bees and queens pass out of the chamber in the hiver in front of the colony through the perforated zinc and the wire-cloth cones, into the chamber in front of the empty hive, and the queen is there trapped. The swarm, upon discovering the absence of the queen, returns to the hive, and, finding the queen at the entrance of the hiver, which, being directly in front of and communicating with the empty hive, the bees at once enter the empty hive with the queen, and commence work. The hiver may now be removed by taking out the two screws, and all queen-cells except one cut out of the parent hive.

The swarm may be strengthened, if desired, by removing the hiver in the middle of the day, when the bees are flying freely; the entrance to the hiver being in front of the swarm-hive after the hiver is removed, the field-bees will return to the swarm-hive. If the swarm is considered to be strong enough, the hiver should be removed early in the morning, before the bees are flying.

WHAT IS CLAIMED FOR THE ANDERSON SWARM-HIVER.

1. It will hive large full swarms.
2. To see if the bees have swarmed, it is only necessary to raise the cover to the empty (or swarm) hive.
3. Either of the hives may be examined without disturbing the other.
4. If a second swarm issues before the hiver is removed, it will be hived with the first swarm; in such case the old (or laying) queen will be accepted by both swarms, and the young queen balled and destroyed.
5. If the bees do not swarm, the colony gathers honey just as well as without the hiver. During the season of 1892 the colony that made the most comb honey in my apiary of 40 colonies had a hiver attached, but did not swarm.
6. If drones clog the entrance to the hiver, the perforated zinc slide may be withdrawn, the drones liberated, and the slide returned; the drones may then be destroyed, in the evening, at the entrance of the hiver. Or make a small box, three inches high, the size of the entrance to the hiver, but without top or bottom. For a top, nail on a strip of perforated zinc; and in place of a bottom, make a tin slide to work the same as the perforated zinc slide in the hiver. To clear the hiver of drones, withdraw the tin slide from the box and place the opening in front of the entrance to the hiver. Now remove the slide in the hiver, and the drones will enter the box. As soon as the drones are in the box, return the tin slide and remove the box, and replace the zinc slide in

the hiver. The drones are now all prisoners in the box. As soon as the worker bees that have been caught with the drones have escaped through the perforated zinc top, shake the box pretty hard for a few moments, which will stun the drones, then withdraw the tin slide and empty the box on the ground, where the drones may be killed by tramping them with the foot.

THE ANDERSON SWARM-HIVER AS USED IN THE PRODUCTION OF COMB HONEY.

For the production of comb honey I have found no better method than the following:

After putting on the swarm-hiver I place four frames filled with sheets of foundation in the empty hive. The fourth or fifth day after the bees have swarmed, the swarm will have settled down to work, and will have the foundation in the four frames well drawn out. I then in the middle of the day, while the bees are flying freely, take four frames of hatching brood, with the adhering bees, out of the parent hive, removing all queen-cells if there are any on them, and place two of the frames on each side of the four frames of foundation in the swarm hive. I then take the half-story with the sections and bees off the parent hive and place it on the swarm-hive; then remove the hiver, and move the parent hive with the four remaining frames of brood to a new location.

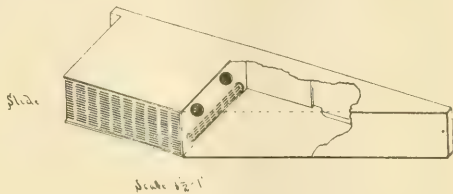
All the field-bees from the parent hive will now return to the swarm-hive, which, with the four frames of hatching brood taken from the parent hive, will make the swarm very strong; and the swarming fever having been satisfied, work will go right along in the sections. When the next colony swarms I proceed in the same manner and place the parent hive, when removed, by the side of the parent colony that cast the first swarm. As soon as the first parent hive has a laying queen I remove the queen from the other hive, if they have one, and then double the two together by placing the frames from each hive alternately in the same hive. I then put on a super full of sections, and if honey is coming in freely the bees will enter the sections at once. By this method the increase is kept down to one colony for every two swarms. If increase of colonies is desired, instead of doubling the parent hives put in each parent hive four frames of comb or foundation, and allow them to build up.

By the above method there will be no second swarms, as the removal of the four frames of brood and bees, and the loss of the field-bees, so weakens the parent hive that, as soon as the first queen hatches, the remaining queen-cells are destroyed.

[After friend Anderson had sent the foregoing, he later sent the following, with another drawing showing the arrangement somewhat simplified. We have had it also engraved.—Ed.]

Within the past two days I have thought of

a slight improvement in it, as will appear in the drawing which I inclose herewith. You will notice I have cut off the corner of the chamber in front of the colony, and beveled the hive, thus doing away with a useless vacant



space—making the hive less bulky, and considerably decreasing the amount of lumber required to make it. When made as shown in the drawing, a $\frac{1}{4}$ -inch board 10 in. longer than the top board of the hive sent you, cut diagonally, will make both top and bottom of the hive, and no end board is required in the beveled end, as the front board nails up to the block in the end of the hive.

Bloomsbury, N. J.

THE DANZENBAKER HIVE AND SECTION.

By F. Danzenbaker.

Forty years ago I managed bees in box hives, and then progressed to the Quinby and American hives, with large and deep brood-chambers and combs, liable to stretch, sag, and bulge, when heavy with honey. The care of keeping the hives exactly level to secure nice straight combs true in the frames led me then to desire a shallow comb-frame, more than 25 years ago, which I laid aside when the Simplicity hive came in vogue, that I might be in fashion with those using the standard hive and $4\frac{1}{4} \times 4\frac{1}{4}$ section, the production of comb honey being my specialty; and during that time I have been a close observer of others, testing what I thought desirable improvements, including the open and closed end frames and the Hoffman deep top-bars, etc. However, I am chiefly indebted to the champion comb-honey producer, Capt. J. E. Hetherington, of Cherry Valley, N. Y. (who has raised 40 tons of comb honey in a year), from whom I learned the superiority of the oblong deep honey-sections as used by him and others in New York and the East. Twenty-five per cent more of them will stand on a given hive surface than the standard $4\frac{1}{4} \times 4\frac{1}{4}$ sections; and this form conveys a better impression of full weights. Having space for a deeper cluster, the bees enter them more readily; and, filling them out better at the sides, they are safer in transportation; more attractive in appearance, they sell for two cents each more in market. Thirty-two of these deep sections, in a case, require no more hive surface than 24 $4\frac{1}{4} \times 4\frac{1}{4}$ sections on the eight-frame Dovetailed

or any other hive. They are scored out *at the corners*, providing side openings for free passage of air and bees between the tiers of sections, also saving the irksome labor of scraping propolis from the corners of sections; said corner being cut away, the bees do not daub or glue the openings which they can pass through. The sections are nicely filled at the corners, and are ready to set right into the shipping-cases, as taken from the supers.

The Root style of section-holder (put together by dovetailing) is made to hold four of these sections, there being eight holders for each case, supported within the metal hangers and case, provided with wood separators nailed to them to make the sections of uniform size and weight.

The entire case of sections and holders is covered air-tight with a layer of paraffine paper, which the bees do not cut away if covered over with other paper or cloth, and held down close and smooth by thin boards beneath the outer cover. This is of the utmost importance, as bees can not work to advantage until the top of their hive is *air-tight* to retain the warmth of the colony, provided there is abundant ventilation at the entrance of the hive, which may be controlled to suit the seasons and conditions of the colony, to restrain the swarming impulse. When extra stories are used, and more ventilation is needed, it can be given by reversing the bottom and shifting the first or second story forward, thus giving full and direct ventilation at front and rear if desired, which will cause the bees to store their honey at the top of the hive, instinctively to avoid danger from robbers.

The hive-bottom is made to give a deep space and opening under the frames by reversing it when desired to admit more light and air to force the bees to store their surplus at the top of the hive. The bodies and supers are all alike, square edged, to fit tightly together for tiering up, consisting of but two pieces, ends and sides dovetailed to go together the same as four-piece sections.

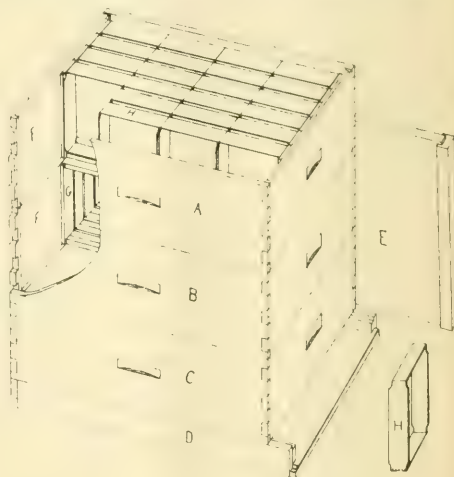
The brood-frames are made in the same way; but the ends and top and bottom bars being alike there are but two kinds of pieces used in them. The section-holders are also made of two pieces, so in each of the separate parts of the hive they duplicate each other, to have the fewest separate pieces possible; and as all are made for me by the A. I. Root Co. with the latest improved all-iron machinery, the work is as nearly perfect as possible to be, and is very easily put together.

The hive proper consists of two stories used as a brood-chamber, and one story for a super; extra supers can be ordered to use if two tiers are needed. Two stories are intended to be used in wintering, as well as breeding up in spring, as the full bee-space is at the top of each case, independent of the others. The lower hive is intended to be placed at the top in

putting on a super to bring the brood directly beneath the sections, which stimulates the bees to storing honey directly above it; by alternating the bodies at proper intervals, the uncapped honey will be carried from the lower one to give room for the queen; and the two stories giving ample room for a brood-chamber, no queen-excluder is needed where separators are used between sections filled with worked foundation, as the queen will not leave a large brood-nest for single sections, except to raise drones when not allowed drone comb in the brood.

METAL HANGER.

The brood-frames for sections, and the brood-frames, are supported in the case on a removable sheet metal provided with turned edges or flanges on alternate sides, to hang upon the top edges of the cases, with the end-bars of brood-frames or section-bars resting upon its lower edge, this unshrinkable metal having such



bee-space that *will not* be contracted by shrinkage above the brood-frame and sections as may be desired, and determined by the width of the sheet metal and corresponding depth of the cases. These metal supports are adapted to either deep or shallow hives, using close-fitting end-barred brood-frames. This arrangement gives increased capacity and facility of manipulation, as these removable supports *can not* be glued fast to the hive, and are fully covered by the end-bars of the frames, which they support and protect from touching the end of the cases, so that the bees *can not* glue the frames fast to these supports, *nor* to the sides of the hive, and they are easily removed with the brood-frames or sections by reversing the case and lifting it off, or they may be pressed down over a follower the same as a "T super," leaving the sections or frames free for removal or inspection. Paper or other elastic material may be placed between these supports and the cases to form a cushion giving flexibility, if de-

sired, to facilitate the nlling and removal of frames or sections.

Washington, D. C.



FLORIDA MOSS AND HONEY-PLANTS.

By Mrs. L. Harrison.

I read with much pleasure A. I. Root's notes of travel in Florida. For four seasons it has been my winter home. This winter is very materially different from previous ones that I've known, for frost has robbed the orange and lemon trees of their shiny green leaves, and kept the roses from blooming. Whenever I pass under the magnificent live-oaks, hung with nature's drapery, I feel like raising my hands in adoration to the Giver of all good, with an invocation that this great work of his, for centuries, may not be rudely destroyed. "The groves were God's first temples."

The botanies class Spanish moss as an air-plant, and I fail to find any roots that would indicate that it is a parasite; but it is said in time to kill trees. To-day I passed through a grove of live-oaks, and I noticed several great trees, heavily laden with this moss, that were entirely dead. If it is a parasite, it draws life from both living and dead trees—from the sap of the living and from the decaying wood of the dead. I think it is a mistake, that it will grow hung on a wire. Many observing persons think that its presence indicates malaria, and, by a wise provision of nature, absorbs it in some way. It evidently thrives best where the fogs are the thickest and most frequent, holding moisture in its meshes. It does not grow naturally on our own grounds; but when I put it upon the limbs of scrub oaks it lives, but does not thrive as it does in its native habitat. I grow it as food for my fowls, for they are very fond of it; so are cattle; and I wonder why the residents do not pull it down for them, when forage is so scarce that they will eat daggers. I've not been able to learn whether bees work upon this moss while it is in bloom.

If this moss is gathered and put into pillows and mattresses in its green state it will soon smell very offensive. The parasite must be killed by burying in the ground, or by boiling, before it can be utilized in this way, when it will make good mattresses and pillows.

The ti-ti is an excellent honey-plant, and should be spelled with a hyphen. It may be found in a Southern botany, and is known as *Cliftonia ligustrina*. It is an Indian word, and means tangle, or thicket. The name is given to the small trees; also the places where it grows are known as ti-ties. It grows only in

living water; and if the water is dammed up, and becomes stagnant, it will perish. The bloom is small and white, growing in racemes, and is sweet and fragrant, yielding honey that is white and of good flavor. It had commenced to bloom before the great Valentine storm of snow and sleet, which put an end to it; but it is again opening, Feb. 25. It is much used for decorations at Eastertide.

I see that you class goldenrod as blooming here in September; it may bloom then, but I've seen bouquets of it gathered in April.

You should not fail, while in Florida, to visit the largest apiaries in the State, of Alderman and Roberts, located at Wewahitchka. This is an Indian name, meaning the "lakes of the two eyes," or eye-glasses, as they are shaped like them, and are about 35 miles long and 18 miles wide—otherwise known as the Dead Lakes. They are thickly studded with dead cypress-trees. One of the most weird experiences of my life was while returning from visiting an apiary located on an island. It was in the gloaming; and the approaching darkness, as I sat in the canoe, with the tall cypress-trees bearing upon their branches a heavy drapery of moss, and only the strong arms of a trusty colored man to guide and propel the little craft through the intricacies, was a scene long to be remembered.

The trade-mark of this firm is "Orange Bloom." Their surplus honey is not gathered from this source, as that from the orange is used in rearing brood. There are many groves in this locality. The surplus honey is gathered from tupelo. There are several varieties, known as black-gum, sour-gum, and gum-trees. Bees also gather honey from moonflower, an aquatic vine. This region will support more colonies than any other I ever saw; but it has its drawback, in being very malarious.

St. Andrews Bay, Fla., Feb. 26.



WHEN TO TRANSFER BEES.

Question.—Having quite a number of colonies of bees in box hives which I wish to transfer, I should like to know when this can be done to the best advantage. Can I do it as soon as spring opens? or had I better wait till the bees are securing honey from the fields?

Answer.—The transferring of bees from box hives, or "gums," or from one style of frame hive to another, can be successfully done at any time of the year when bees can fly, if the operator understands just the needs of the case; and I always look with pride on that man or woman who has ability enough to accomplish any thing successfully which it is necessary to

do at a certain time, no matter whether said time is the most propitious or the most unpropitious. The one who can set out a row of small-fruit plants, and make all live in a time of extreme drouth in midsummer, or the person who can successfully transfer a colony of bees in early spring, when robber-bees are prowling around, is to be admired; yet unless there is some urgent reason why a certain thing should be done at a certain time, it is always best to wait about doing any thing till that time when every thing is the most conducive toward a successful outcome. As I consider it, there are two seasons of the year when bees can be transferred to the best advantage, the first being during fruit-bloom, and the other 21 days after a prime swarm has issued. During the first part of fruit-bloom the scramble after new honey is such that one is not liable to be annoyed with robber-bees, and at this time there is very little honey in the combs to cut through and make a sticky mess of every thing which is used during the operation. Again, as the bees are getting their first honey they are eager for something to do inside the hive at night, hence will repair all the mutilations of comb, fasten the same in the frames, etc., much more readily than at any other time. With all the above being true, fruit-bloom brings the most auspicious time for transferring bees, but it has this drawback: As a rule, the bees have got under good headway rearing brood, and we shall find the combs half or two-thirds filled with the same, so that, in cutting them to fit our frames, much brood must be sacrificed, as well as displaced in the brood-nest, owing to our not being able to secure all in the shape in the new hive which it was in the old one. All of this has a tendency toward a loss of bees; and as all of the brood which is sacrificed at this time would become bees of the right age to do the best labor in the honey-harvest, had we left the transferring till later on, we can see that a loss must be made by doing our transferring at this time of the year, with all colonies except those which have little brood in their combs. For this reason I prefer to wait till 21 days after the prime swarm went out. At this time all of the brood will have hatched from the combs, except perhaps a few drones, and the young queen will have laid but a few days, not long enough so that there will be much but eggs in the combs, so that all we have in our way now is the honey which the combs may contain. As this comes at a time of year when the bees are securing all of the honey they want, and the weather is always warm so that no brood or bees will become chilled, we can now do our work right out in the bee-yard, this making it more convenient. Then should you desire to use the Heddon, or modern plan of transferring, by driving out the bees and hiving them in a hive filled with comb foundation, this is just the time to do it,

for the combs are free of brood, so only the one operation is needed, and the old combs can be cut out at once and placed in the solar wax-extractor, doing this work right beside the wax-extractor, so that in an hour or two you can have both the honey and wax in shape to use, thus saving time and delay which would result at any other time of the year.

HOW MUCH FOUNDATION SHOULD BE USED IN SECTIONS?

Question.—As I wish soon to prepare my sections for the coming honey-harvest, I should like to know just how much thin comb foundation it is best to put in each one. Shall I put in just a small triangular starter, or fill the section full?

Answer.—The answer to this question will depend quite largely on two things. The first and most important is, have we the necessary means to procure all the foundation which will be needed to fill our sections, without depriving ourselves or family of some of the necessities or comforts of life? If we have not, then my way would be to use triangular starters, the same having each of the three sides about two inches long, in three-fourths of the sections I was to use; and when the season opens, put in starters of white new comb, which it is always easy to find or produce during fruit-bloom in any apiary, in the remaining sections. In this way little if any difference as to the yield of honey will be seen in an ordinarily good season, especially if the sections containing the starters of comb are scattered uniformly among those having the foundation starters. The difference when so working will be that the sections will not contain all worker comb, nor present quite so fine an appearance, nor the combs be attached to the wood of the sections all around quite so well, as where the foundation in full sheets is used; still, very little difference will be made in the selling price for the lack of the full sheets of foundation.

Again, if I thought it best to hive my new swarms on frames filled with comb foundation, so that wired frames filled with worker combs would be a certain result, then I would use only starters in the sections as above. When a prime swarm issues, they go forth, as a rule, with wax already secreted in their wax-pockets, so that they may at once commence to build combs in their new home; and if the new home is already supplied with all the necessary combs this wax is wasted, or, what is often the case, worse than wasted, it being added to the foundation already in the sections, so that, instead of drawing out the side walls of the foundation, they build with their own wax the cells of the combs, thus leaving the foundation in the sections the same as it left the mill. This causes the grumbling about "fishbone" in section honey, which we often hear about. Now, where I hive swarms on full combs, or frames filled with foundation, I use only start-

ers in the sections, and find that the bees will build the combs in the sections while they are drawing out the foundation below, and thus a saving is made. But as a rule I prefer to fill the sections with foundation, that I may have handsome salable sections of honey, and use only starters of foundation in the frames below, having the starters in the frames, say from one to 1½ inches wide. By contracting the brood-chamber to six frames, the bees go to work at once in the sections, drawing out the foundation there, while at the same time they build all nice straight worker comb in the frames, which does not detract from the amount of section honey in the least, so far as I can see.



THE CROSSES OF FIVE-BANDERS.

I notice in January 1st GLEANINGS, page 23, an editorial stating that a cross between a queen of five-banded stock and a black drone, or a five-banded drone and a black queen, will, according to your experience, result in all the bees showing at least three yellow bands. Now, there must certainly be a mistake somewhere, as our experience has been to the contrary; for we have had many a fine golden five-banded queen mated to a black drone, which in every case produced from the finest five-banded bees to the blackest native, and we had also the reverse. A black queen mated to a five-banded drone produced bees as black as tar, and now and then a bee that showed three, four, and five bands. LEININGER BROS.

Ft. Jennings, O., Feb. 6.

COUNT YOUR MONEY OVER.

When I was selling my honey this fall, the last I sold came to about \$30.00. It was in Detroit, and on the street. The man took it at my weights, and we reckoned the price the same, and he paid me before the honey was taken from my wagon. He took a roll of bills from his pocket, counted them, and handed them to me. I counted them, and found \$21.00. Said he, "Let me see them. I thought there was more." He counted them over again, and said, "Yes, that is right—twenty-one," handing the roll back, which I put into my pocketbook by itself. He then paid me the rest in silver, put the honey in his wagon and went his way, while I went home congratulating myself for selling out at a good price. You can imagine my feelings, when I got home and counted my money, to find his roll of bills just \$10.00 short. It made me blue for a while, I tell you, for I could ill afford the loss; but God probably knew what it was for. It is the first time I ever lost any that way, but have since learned of quite a number

doing so. I was watching the man all the time, and counted the bills at the same time he did. He must have been very expert at his trade. The moral it taught me is, always recount your money when it has been taken from you for recounting and handed back to you.

BENJAMIN PASSAGE.

Stark, Mich., Jan., 1895.

HOW TO EXTRACT THICK HONEY.

I wonder if all honey is as hard to extract as was mine last season. I left the honey on the hive till it was well ripened. The frames weighed about 7 lbs., and the honey was so thick I could not extract all of it, as it would break the combs. What was the cause? Is all honey so hard to extract, or was it the extractor? The extractor was of my own construction.

FRANK N. BLANK.

Prairie Home, Mo., Feb. 18.

[You must have some extra fine honey, for the thicker it is, the better. How shall we get it out of the combs? First store the combs in a warm—yes, hot room for a few hours. Use a reversible extractor; extract one side of the combs partially; reverse the pockets, throw out the honey, and then return to the first side and throw it all out. The combs break because the great weight of honey on the side opposite the side extracted presses upon the bottom of the cells; but by reducing this weight by a gentle turning of the handle, greater speed may be used to get the honey all out without breaking the combs. Of course, they should be wired.—ED.]

H. R. BOARDMAN'S ARTICLE AND C. A. HATCH'S COMMENTS.

Feb. 15th GLEANINGS is at hand, and I have read Boardman's article on hives with much interest, and can say "me too" to almost every line, especially on the tiering-up part. The whole article is well written, and the ideas are good. But let me call your attention to some points in the tiering-up paragraph. 1. He says it "involves some extra labor." Good! just my idea! 2. He says, "I do not expect the queen to continue laying in both hives at the same time." "I do expect, and am not often disappointed, when the queen goes above, that she will continue to work in the upper hive until it is full of brood." Just so! what we have always said; and while this is going on you are getting empty combs or combs of honey below, by the hatching of the brood. Do you see my position on this tiering-up question? Let me try once more to explain it. Plenty of room below for the queen, so she need not go above to lay, to the neglect of the combs below. 1. Because we do not want any empty combs in the hive. 2. Because if they are empty of brood, and the workers fill them with honey, it discourages storing above. See?

But, why do you claim Bro. B. on the eight-frame side? Simply because his frames count eight? He advocates nine, however; and when you figure out the comb surface of his

nine frames, $12\frac{3}{4} \times 12\frac{3}{4}$ inside measure, you have rather more comb surface than ten L. frames with $\frac{3}{8}$ -in. top-bars. The comb surface of 9 frames, $12\frac{3}{4} \times 12\frac{3}{4}$ in., is 1463+ in., and the comb surface of 10 frames $8\frac{1}{2} \times 17\frac{1}{4}$ in. (L. size with $\frac{3}{8}$ top-bar), is 1455+ in. Is that difference enough to argue about? Really, Bro. B. differs from the ten-frames in favoring closer spacing, not in number of frames. Am I right?

Ithaca, Wis.

C. A. HATCH.



EIGHT extra pages as usual.

OUR revised booklet on Bees and Fruit is now out. See Special Notices for further particulars.

REPORTS show that bees are still wintering comparatively well, considering the extremely cold winter that we have just had. We shall be sending out our statistical blanks soon.

WE have just had a delightful visit from the Hon. Geo. E. Hilton, one of our bee-keeper legislators, just from the Michigan State Assembly at Lansing. He is chairman of the Railroad Committee, and had arranged matters so as to get away a couple of days to make us a call—a pleasure he had promised himself for years back. Mr. Hilton is one of God's noblemen, and I wish more of our legislators had the same honest heart and the same earnest desire to do good to their fellows as he has. Although the opposition at the last election made a tremendous effort to defeat him, even putting up a union ticket combining three parties, he was elected by a handsome majority for the second time.

THE BEE-ESCAPE FAD AND BEE-ESCAPE INVENTORS.

It seems as if almost every mail was bringing in a bee-escape that some fellow has just invented. The ground has been so well gone over that none of them, so far as I know, contain any new idea other than that recently advanced by C. W. Dayton—the flood-gate principle combined with the going-toward-the-light idea. This combination, I believe, is new, though the two separate ideas are old.

Well, how about these fellows who are sending in their escapes? I have to write and tell them that their idea belongs to so and so, as described on such a page of GLEANINGS. One man wrote that he had an escape that would rid supers of bees in two hours' time. I somewhat doubted it, and the more so when I came to examine critically his escape. If I am correct, the most we can expect of any escape, on

the average, is to get the bees out of the super over night; and I am inclined to think that those who *think* they have something that is away ahead of the Porter, the Dayton, or some of the other well-known forms, that will do the work in a half or a sixth of the time, will find, upon further experimenting, their mistake. The bee-escape fad has assumed, within the last six months, or year, something of the nature of the reversing-frame fad of a few years ago. Our older readers will remember that almost every thing conceivable, in that line, was invented. Well, that condition of affairs is pretty nearly true of the escape. The old forms may be improved some, but that is about all we can expect.

HONEY IN HOTELS.

I BELIEVE it is a fact that hotels throughout the country seldom put honey on the table. The proprietors may be laboring under the impression that it is too expensive. But honey is something, a little of which will go a great way; and if only some means could be employed to induce the proprietors to place the article on the table, even if only once a week, it would add greatly to the sale of honey, and at the same time advertise it among a class of people who would use great quantities of it. If bee-keepers, whenever they patronize hotels, especially when in attendance at conventions, would call for honey at the table, it would be put there. Then producers should make an effort to sell to them direct. The following is an extract from a letter, that I take pleasure in giving here:

The writer was in Grand Rapids last week, and the first time he ever found a hotel that served comb honey to the guests was the Morton House. Upon questioning he found out that they served it every Friday night; and as they gave about $\frac{1}{2}$ of a pound to each one, you see they are liberal in serving it. You might mention this fact in your paper, as it might assist some of the bee-keepers to interest other hotels in using it, thereby making a larger outlet.

S. T. FISH.

Chicago, Ill., Mar. 7.

The proprietor of the Morton House ought to be congratulated. We feel sure that their patrons will appreciate the favor, even if comes only on Friday. Let more hotels follow the example.

GIVEN FOUNDATION MADE ON ROLLER MILLS.

WE have finally turned out a mill that duplicates almost exactly, in my estimation, the same article that comes from the Given press. Besides that, it has the advantage of the rolls in making a more regular sheet, and, I hope, a thinner base, and, in a given time, a larger quantity. Here is what Mr. R. L. Taylor says, to whom I sent some samples:

Friend R.—Yours of a late date, as also samples of foundation made on new style of machine, is received. The foundation is very much like the Given; looks exceedingly well, and, when properly

made for sections, I believe it will prove to be a decided improvement over the old kind. Of course, the main advantage will be in its use for sections, and for that purpose the sheets of wax must be made so even and thin that, in milling, the raised cell-walls will not be pressed on top. I shall, of course, be very anxious to test it when the honey season comes.

R. L. TAYLOR.

Lapeer, Mich., Mar. 8.

I wrote to Mr. Taylor that we would send him some of the Given rolled wax in sufficient quantity for him to test, to see whether it compared favorably with that made by the press. In the mean time, doubtless, other bee-keepers would like to try it. I am glad to say that we are now in position to furnish it at the same prices as other foundation, when called for. But you must bear in mind that it does not look like ordinary *rolled* wax. The walls are very thick, and the sheets of foundation have a rather clumsy appearance as compared with the regular article that we have been selling.

SIMPLE METHODS OF DETECTING WAX ADULTERATIONS.

In speaking of detecting impurity in beeswax, the Dadants, in our last issue, refer to the water and alcohol test. It has occurred to me that some of our readers would like to know what it is. On page 596, Vol. II., of Cheshire, we find the following:

Fresh wax melts at about 144°, but the melting-point rises 2° or so by a few months' keeping. The specific gravity of wax is nearly equal to that of water, and ranges between .960 and .965, water being 1.000. When adulterated with hard fats, its specific gravity is reduced, and on this fact Mr. Hehner has suggested an exceedingly simple test. Take a piece of undoubtedly pure beeswax, and cautiously mix alcohol (methylated spirit) with water until the wax just sinks. A piece of wax so adulterated would, in the same test-fluid, rise to the surface. The test must be applied, however, with great care, as any air-bubbles in or on the piece to be tried might lead to its being condemned unjustly.

A simple method for the detection of paraffine adulteration, though not entirely reliable, is to take a small piece of the suspected wax and chew it. If it crumbles up within seven or eight minutes in the mouth, it is probably pure wax. If paraffine is mixed with it, you can chew it longer without its crumbling, but it will not crumble quite so much. To sufficiently acquaint ourselves with paraffine mixtures, we took a small quantity of beeswax and melted with it an equal quantity of paraffine, and then tried it by all the various tests; but we were greatly surprised to see how very much like pure wax this half-and-half stuff looked; but according to the chewing test it showed the presence of paraffine; but the stuff which we spoke of in our last issue, and which we came very near accepting as pure beeswax, seemed to stand the chew test pretty well. It smelled like real wax; and in breaking a cake of it, it had the regulation granular appearance along

the line of fracture. But the wily chaps have discovered the process of mixing in paraffine of a higher melting-point, and had been "doctoring" it up in other ways so that it seemed to stand ordinary tests. But now since the chemist has declared the wax to be adulterated, we find that, according to the chew test, the wax does not crumble quite so promptly as it might.

Another method of detecting grease, besides the alcohol and water test, is in the use of chalk. Besides a greasy appearance of the cakes, if a piece of common blackboard chalk be scratched across the smooth surface the chalk will slip along without making any marks. If there is no grease present, a white mark will be made. Grease is also detected by the smell and by the character of the fracture. When a cake of such wax is broken, just how this fracture should look can be determined only by experience.

THE SUGARS OF COMMERCE PURE, AND WHY.

MR. C. DAVENPORT, on page 217, gives it as his opinion that sugars, even the best grades of cane sugars, are largely adulterated. Since his article, with my footnote, was made up, I have found Bulletin No. 13, from the United States Department of Agriculture by the Division of Chemistry. I find that several of the United States chemists analyzed 500 samples of sugars obtained in the open market, and that all were found to be pure, with the exception that a few of the lower grades contained an excess of water, which could hardly be called an adulterant. The Chief Chemist goes on to tell of the attempts that have been made to adulterate or counterfeit cane sugars, but all have ended in failure; and he says further, that the low price of cane sugar renders adulteration practically out of the question, even if it were possible. I think we may set it down as a settled fact, then, that granulated sugar—indeed, all of the white sugars—are absolutely pure. We know there are adulterations in other lines of food stuffs; but let us not make the mistake of jumping to the conclusion, without good evidence, that all foods are adulterated.

Perhaps it would be well to state that, in certain grades of *powdered* sugars, especially confectioners', will be found a small percentage of starch. But this is hardly to be regarded as an adulterant, because the sugars in question are designed for making frosting for cake, and the starch is an important element in making good frosting, if I am correct.

Another interesting fact—one that we have generally accepted as true, however—is, that the chemists say, "In general it may be said that, for a given sum, a greater quantity of saccharine matter can be purchased by taking the high-grade sugars."

They admit that *maple* sugar may be adulterated with cheaper varieties of sugar, because "at the present time the resources of chemistry

are powerless to detect such an adulteration. The sugar of the maple sap is identical in composition with that of the sugar cane, sorghum, and sugar beet. No discrimination in such cases can be made by analysis." I think, therefore, we may set it down as a fact, that, when we feed our bees syrup from white sugars, we are *sure* we are giving them the very best pure sweet, and at a price that is cheaper than any thing else on the market.

OUR POSITION IN REFERENCE TO PATENTS, AND TO DIVISIBLE BROOD-CHAMBERS.

I THINK we are misunderstood; and to correct some misapprehensions I will try to set forth our position. Years ago, A. I. R. gave expression to the following:

I am very glad indeed to note the disposition among bee-keepers, of forbearing to copy the works of each other, patent or no patent. The supply-dealer who would unhesitatingly copy something well known to be the property of another, without getting the privilege of so doing, by purchase or otherwise, would very likely lose more than he made, so strong is the disposition of our people to give honor to whom honor is due.

We believe every word of it to-day, and propose to abide by its spirit. We are paying royalty now on some four or five patents, and we may do so on more. We are also paying royalty for the use of certain inventions on which no patent was ever taken. "But," you say, "how about Mr. Heddon and his divisible brood-chamber hive?" We propose to honor and respect Mr. Heddon's rights, so far as we honestly understand them. We never made or offered for sale his hive; but should we ever do so (i. e., such a one as is specified in his patent) it would be under royalty, or such an arrangement as we could make with Mr. Heddon himself.

"But," you say, "how about the Danzenbaker patent, and his hive, as described in this issue?" That is a point which the interested parties will perhaps settle between themselves. But, again, you may ask, "Have you not been trying to evade Mr. Heddon's patent in recommending two Langstroth bodies, one on top of another, as one brood-nest?" Inasmuch as two-story Langstroth hives, through both of which the queen has had access, have been in use many years, we did not, and do not now, think they conflict with Mr. Heddon's claims. Before perforated zinc was known, queens must necessarily have had access to the several parts of the hive.

I understand that Mr. Heddon has criticised us pretty severely in the January number of his *Dowagiac Times* extra. No copy of it has as yet been received at this office, so I do not know what has been said, other than what has been reported to us second hand. In any case, we desire to arrange honorably and amicably for any invention properly belonging to another, that

we may desire to use or manufacture. Any other course would be inconsistent with the sentiment written by A. I. R. in '84, and, more than all, dishonor the Lord and Master whom we are trying to serve.

OFFICIAL CANVASS OF VOTES.

GENERAL MANAGER NEWMAN has sent the following report:

To Members of the National Bee-keepers' Union:

The canvass of all the votes received, up to the time of closing the polls, February 1, 1895, shows that 151 ballots were recorded, as follows:

FOR PRESIDENT—

Hon. R. L. Taylor, 126; Dr. C. C. Miller, 5; G. M. Doolittle, 4; Hon. Eugene Secor, 3; A. I. Root, 2; scattering and blanks, 11. Total, 151.

FOR VICE-PRESIDENT—

Dr. C. C. Miller, 114; G. M. Doolittle, 113; Prof. A. J. Cook, 102; A. I. Root, 101; G. W. Demaree, 77; Hon. Eugene Secor, 38; C. P. Dadant, 31; C. F. Muth, 22; P. H. Elwood, 16; G. W. Brodbeck, 14; G. W. York, 11; E. R. Root, 7; Hon. R. L. Taylor, 7; Mrs. Jennie Atchley, 6; Hon. James Heddon, 6; W. Z. Hutchinson, 4; S. I. Freeborn, 3; R. F. Holtermann, 3; Frank Benton, 2; C. W. Dayton, 2; H. G. Acklin, 2; scattering, 17.

FOR GEN'L. MANAGER, SECRETARY AND TREASURER.

Thomas G. Newman, 149; blank, 2. Total, 151.

Although several have expressed their desire for a change in the officers, the members have decided to keep the management in the same hands for another year.

Mr. G. W. Damaree, who has served as vice-president for 10 years, now states, both publicly and privately, that he *positively declines* to act on the "advisory board" for the coming year, as he desires a change in the "official board." This will elect Hon. Eugene Secor, who has received the next highest number of votes. We welcome friend Secor most heartily, because of his eminent ability, influence, and sound judgment. This is a place where the latter is a very necessary qualification, and the sagacity of the Board is sometimes quite severely tested.

Several more decisions from Supreme Courts are needed as precedents, for the guidance of judges in lower courts, and one of these, I hope, is about to be obtained, covering a very important point.

The "Treasury" being in a satisfactory condition, the Union is fortunately in a position to *demand justice*, and protect the rights of its members in the courts of law.

This is a place where "money counts." If the Union were a bankrupt concern, quite powerless to "help in time of need," its influence would be infinitesimal, and itself a laughing-stock for all. The "sins of war" makes all the difference in the world.

THOMAS G. NEWMAN,
General Manager.

BEGINNING with this issue we shall allow space in our Trade Notes department for inventors to describe some of their recent inventions as they come forth from the Patent Office. In doing so I shall neither indorse nor condemn, but let the inventions stand on their own merit.



HIGH-PRESSURE GARDENING IN THE SWAMP WOODS, OR HAMMOCKS, OF FLORIDA.

Another trip on the cars, and we struck Titusville. I have just been out in the woods with friend Fröscher, and have seen something that I shall not soon forget. Imagine a low piece of ground covered with palmetto-trees, with all other growth cut away. Now imagine open ditches, two or three feet wide, cut through at intervals so as to draw off the water. The bottom is pure white sand; and the water, as it runs through, is as soft as rain water, and as clear as water well can be. These ditches are cut through at intervals of from one to five hundred feet, as may be needed to take off the surplus moisture. The gardener goes to work and gets out every thing except the palmetto-trees. These are all, or nearly all, left standing. They are, on an average, perhaps ten or fifteen feet apart, may be farther. When they have oak stumps difficult to get out, rubbish is piled on them and burned. Then the ground is grubbed up into ridges and furrows, say averaging 25 or 30 inches apart. The kind of soil selected for this sort of gardening is a soft, black, sandy loam. It looks a good deal like what we call woods dirt. On the tops of these ridges the crop is planted. This morning we saw a patch of beans. The plants stood evenly three or four inches apart. They were large enough to have four or six beautiful, thrifty leaves to each plant. As we approached the garden the luxuriant bright green, partly in the shadow of the palmettoes, made one of the prettiest sights I ever beheld in the way of gardening. Closer inspection showed thrifty tomato-plants, some of them nearly a foot high, standing at intervals in the furrows between the beans. These tomato-plants were saved at the time of the freeze by being bent down and covered with the loose dark soil; and now right here is a strange phenomenon. The beans and other plants grow just as thrifty right close up to the trunk or stump of a palmetto-tree as anywhere else. The gardeners say the beans require some sort of fertilizer that the palmetto does not use; and it has been suggested that the palmetto is a sort of air-plant, so that it really takes very little from the soil. But the principal object in leaving these palmetto-trees is, that they keep off frost from the beans and tomatoes, and also keep off cold winds and the extreme heat of the sun. In fact, it makes a sort of shaded greenhouse during the heat of the middle of the day. The gardener works in a shady woods, with damp soft soil under his feet, and pure running water always close at hand. The gardens seem to be in small patches of from one-half to a whole acre. Around this little circle or square, a thicket of woods is left for protection. Of course, no horses are used. The work is all done by hand: but the soil is so light and soft that hoes and steel garden-rakes enable the workman to prepare the ground and keep out the weeds, with comparatively little labor. Besides beans and tomatoes we saw cucumbers, lettuce, radishes, cabbages, onions, and, in fact, almost every thing grown in gardens, cared for in this way.

Friend Fröscher has his gardening ground so arranged that he can shut up the ditches and raise the water to any height, just as we do in our celery-grounds north; and, in fact, he has made quite a little start in producing fine celery, to be shipped to the northern markets

during the months of March, April, and May, when celery is out of the markets in the North. The bleaching is all done with boards. The principal impediment just now is the matter of express charges. For an illustration: Five boxes of celery shipped to Philadelphia brought \$12.00. The express companies took \$9.00 of the \$12.00, leaving friend Fröscher the remaining \$3.00. May be this matter can be remedied when the express companies have more competition, and the work is more fully established. In any place except Florida, so much shade would be more of an objection; but even up north, during our hottest summer months, I have observed that certain garden-plants do better when somewhat shaded, more especially celery.

Now in regard to rotation of crops. The friend we visited, Jas. Cole, has raised two crops of Refugee beans, picked for snap beans, of course, in a season; and he would have had three crops had it not been for the big freeze. He succeeded in harvesting and selling one crop in the fall, cleared off the ground, and planted another; got them just about as far along as those we saw to-day, when the freeze demolished them. Therefore, during ordinary seasons there would be no difficulty in getting three crops. During the very hot weather of the summer, however, they have difficulty in keeping the ground occupied, unless it is with cucumbers, pumpkins, or squashes, or some crop that bears extreme heat. Even sweet potatoes fail to do any thing if started before August or September. Friend Fröscher says they do just as well as if planted earlier.

ONE OF THE FLORIDA INDIAN-RIVER HOTELS.

For the first time we find it convenient to stop at a hotel instead of accepting invitations from bee-keepers. We were told several times that we must not fail to visit Rockledge. Now, we did not feel called upon to pay \$5.00 a day; but we chose the moderate price of \$2.50, and are abundantly pleased with the Rockledge hotels at that price. There are five hotels in the place; a beautiful, commodious drygoods store, drugstore, postoffice, etc. At the entrance to the road leading to the Indian River Hotel we found an archway of incandescent electric lights. A little railway for running baggage extends from the depot platform to the hotel. A similar one extends from the steamboat landing to the hotel. There seems to be a disposition down this way to avoid the necessity of horses. Boats on the water, that is almost everywhere; railways and plank sidewalks for Daisy wheelbarrows (and other kinds), seem to be the general plan; and, in fact, without shell roads or some other kind it takes a horse a good while, and even then considerable muscle, to get any kind of a load through the soft and yielding sand. The grounds in front of the hotels are finely lighted by electric lights and gas. Fountains are playing on the green lawns, and people are walking about in the thinnest summer clothing. Women folks are bareheaded at that. Scarcely a breath of air is stirring, and the thermometer is well up toward 80°; and yet, even in the evening we have not seen a gnat or mosquito. The porter says they "don't have any here." Steamers and craft of all sizes are on the Indian River in front of the hotels, with their lights marking out their location. We have not paid out very much money so far on our trip; but I feel just now as if I would almost give \$25.00 to have the Root family here for just an hour. Of course, I should want the grandchildren counted in. Some of the friends may think \$2.50 a day for a single individual is pretty expensive. Well, so it would be perhaps if followed up. But let me give you some of the advantages: The postoffice

is just across the way; stores and places of business, I have mentioned; boats are coming and going constantly at the wharf, right at the door of the hotel; we have beautiful, spacious, airy rooms. The parlor and even the office is carpeted and furnished in excellent style. Everything is clean, beautiful, and new. The most courteous and civil people are always ready to help and advise. I was obliged to change the tire of my wheel in consequence of running over a catfish on the beach. At least half a dozen different persons offered to help me, or bring me any thing I wanted. Last, but not least, a beautiful, cushioned naphtha-launch is in use every day, solely for the benefit of the guests of the hotel, and entirely without charge. I wanted to go over to Georgiana, six or eight miles distant, and they carried me over and waited an hour for me to make my visit.

My good friend O. N. Page, at this place, and his family, were delighted to see me, but scolded pretty severely because I came all the way down to Florida and then stayed only an hour. One of friend Page's grandchildren, a curly-headed, bashful little chap who has commenced going to school, couldn't learn to recite the vowels—a, e, i, o, u, y, because, whenever he got started, he would always run off into A. I. Root. You see, A. I. Root is such a household word at Georgiana. Here we first saw a pineapple-garden, and cocoanut palms large enough to bear; and when we saw some strawberries large enough to be red, friend Page climbed over the fence and picked a berry. Then we told the owner afterward. It seems too bad to hurry by friends who are so glad to see you in this way; but how else shall I ever get around?

Friday, Feb. 1, we found ourselves at Palm Beach. I enjoyed a ride on my wheel for several miles before breakfast. It is daylight here at half-past five, and the earliest breakfast is at half-past seven. I ran down the west coast of Palm Beach through beautiful grounds interspersed with cocoanut palms and various other tropical products. Patches of tomatoes more than a foot high greeted me at every turn. At one point I saw a beautiful garden of cacti. Of course, the frost has marred the beauty of all the grounds more or less, but not nearly so much here as farther north. Orange-trees here have all their foliage, and the fruit is said to be uninjured; but very few oranges are grown in the vicinity of Palm Beach, it seems. The grounds around the great hotel, The Royal Poinciana, are not only beautiful, but are kept constantly neat and tidy. The hotel at Palm Beach I should call the handsomest structure of its kind I have ever seen anywhere. The Ponce de Leon, at St. Augustine, is admired by many, and is called the finest in the world. But what prejudiced me at first glance was to see the breaks in the paint, and unsightly stains running down on what I supposed to be stone work. All over the edifice were glimpses indicating that the building was cement and veneer, and not what it purported to be. The Moorish architecture, I admit, is beautiful. The hotel here is built to represent wood, and nothing else. The wood is neatly painted. There are no rusty spots or unsightly cracks caused by the wear and tear of the sun and storms. It is perfectly bright, clean, and handsome. I tried my wheel on the ocean-beach; but the sand seems to be too soft down here. The walks along the shores of Lake Worth at Palm Beach are very fine for wheeling. Along here, as at Rockledge, the shores are mostly lined with a queer rocky formation called coquina. This seems to be all made up of fragments of shells. In many places it is made up entirely of polished fragments, or of shells almost pure white, these fragments being ce-

mented together by what seems to be a transparent cement. It has been suggested it was first made solid by the salt of the ocean, and, after the lapse of time, by some change caused by the sun and air, this salt formed an insoluble compound. The stonework of the Ponce de Leon is mainly of this material. It would seem as if there were fragments of shells enough in Florida to furnish lime for the world. A word in regard to the multiplication of shellfish.

Friend Hart showed us something that looked like kernels of sweetcorn strung on a thread. He said that these eggs were produced by the fish that inhabits the great conch-shells. Each grain of corn, as it appears to be, in due time bursts open, and is then found to be full of little shells not larger than a cabbage seed. These shells grow. I don't know how rapidly, until they make the great heavy handsome shells we find and use so often as ornaments. The animal, when it is alive in salt water, has a neatly shutting lid that it can pull down and be almost absolutely beyond the reach of its enemies. The old mound-builders used these shell-fish for food, for we find the remains of many conch-shells in the oyster-shell mounds, with a hole broken in a particular point to enable them to extract the fish for food.

SHALL I RECOMMEND FLORIDA AS A PLACE FOR A POOR MAN TO GET A LIVING?

In some respects, no. Florida seems to be a camping-ground for rich people—millionaires if you choose. Almost every man who has made a fortune in soap, chewing-gum, or any such commodity, has a winter residence in Florida. There are almost no manufactures or other similar industries, except factories especially for these rich people. For instance, there are ice-factories in every considerable town. Then fishing is constantly going on to supply the great hotels and fine residences. Orange-growing seems to be the one great industry—that is, for a crop to ship long distances. There is no doubt a good opening, and always will be, for gardeners who will furnish extra fine products for the great hotels. Every one who raises a crop, however, must look out that he has a market for all he raises; and he must see to it that he can get a product into the market before it goes to waste on his hands. I should say there is plenty of opportunity to get good wages in most places where one has the energy and strength to work during the hot weather. I warn you, however, that it is the grandest place on the face of the earth to sit on a cool piazza and rest instead of working out in the sun; and if you don't look out you will find yourself giving way to this prevailing fashion. A great deal of the work done is to accommodate tourists and pleasure-seekers. The yachts and launches that are flitting about on Lake Worth right before our eyes, while we take down these notes, are far more for pleasure-parties than they are for business.

This morning at six o'clock the weather was oppressively hot; but by eight o'clock we had a brisk breeze on the water that has several times made me think of putting on my coat. Here for the first time we find cocoanut palms scattered about almost everywhere. Young trees are starting up all through the brush, especially along the bank of the lake. In the little flower-beds in the neat cottage where we are staying are cocoanuts lying on top of the ground, with sprouts from a few inches to a foot or more in length. The smaller ones have as yet no root at all, but those with the larger tops have roots starting out from the other end of the nut, reaching down into the ground. It would seem that they are the easiest things to grow in the world. We are much indebted to

Mr. Wallace R. Moses and Dr. Stites, of this place, for points of information, and many courtesies. When I asked if cocoanuts grew naturally at Palm Beach, Mr. Moses said they did not; that, if he was correctly informed, they originated from a wrecked schooner containing something like 40,000 nuts. These nuts were washed up on the shore, and took root in the way I have described, thus lining the shores with these beautiful tropical trees with their handsome fernlike foliage. These fern-leaves, however, are anywhere from ten to twenty feet long. The nuts hang in great clusters just below where the branches start out at the top of the tree—each nut, of course, being enveloped in its husk. So far as I can gather, however, cocoanut-growing is not as yet a paying industry here. The sharp competition from Cuba seems to stand in the way. The people here gather enough of the nuts for their own use, or for retailing in the Florida towns, and that is about all. In the evening Mr. Moses brought his wife and children to the cottage where we were stopping, and we had a very pleasant visit. Mrs. Moses is quite an enthusiast with poultry and ducks. You know I have suggested that this business could be profitably carried on in Florida. Here are some figures she gave us. During the month of January, just finished, they sold 691 eggs from 58 laying hens, and 607 eggs from 32 ducks. The hens' eggs brought 40 cts. a dozen, and the ducks' eggs 35. This large price was probably owing to the demand for eggs from the large hotels and boarding-houses. Mrs. Moses said if I gave these figures in print I must be sure to state that nearly all of the food for the poultry had to be purchased from the North. They also have to shut up the poultry nights and let them out again mornings, as the opossums and other enemies would be sure to make short work of them.

West Palm Beach has all grown up in one year—at least I am told there were only two houses there a year ago. There are now toward one hundred houses in the place. All kinds of business are carried on. Two papers are published. Beautiful drinking-water is pumped from a fresh-water lake half a mile from the center of the town. The bottom of the lake is of the most beautiful pure white sand. It is about as nice as water can be for any purpose. The pumping-station furnishes an abundant supply for the great hotel, for the town, and for the railroad. Building is going on briskly on almost every street. You can see the carpenter and the owner of the property working together like a couple of brothers, and almost the next day a grocery, barber-shop, restaurant, or printing-office will have out a newly painted sign. Of course, a good many things are pretty crude and unfinished; but the weather is so warm, something that looks like a house is all that is needed. As there is never any mud, it is not a difficult thing to keep the floors and verandas clean. Almost every house has a porch in front, and plenty of rocking-chairs. The latter are generally in use, for almost every one prefers to stay out of doors.

On Saturday, Feb. 2, we found ourselves at the home of O. O. Poppleton, who is so well known to most of the readers of GLEANINGS that a further introduction will hardly be necessary. Here we seem to be right in the midst of the pineapple industry, and this is so strange and unusual that I hardly feel able to describe it accurately, much less teach the people here how to manage their gardening or farming. In the first place, I rather expected friend Poppleton to meet us at the train with some sort of horse and carriage; but he came with a boat. Pineapples are a sort of air-plant that grow in

the clean white sand. When I asked him if stable manure wasn't cheaper than the chemical fertilizers they were using, the question arose, where would they find any stable manure? for, although there is quite a community of people gathered here, there is not one of them who has a horse or cow or pig.

Just at this point we were interrupted by the visit of a boat containing a couple of Indians—one of them a boy of seven, the other a young man of twenty; at least, the latter said he guessed he was about twenty. Although the day is so cold that I have been wearing my fur cap and overcoat on account of the chilly north wind, these Indians were bareheaded and barelegged—in fact, bare almost all over, especially when the wind blew aside their clothing, which was exceedingly short. The little fellow could not talk our language, but he could smile in a way that was quite taking. They were of the Seminole tribe, the remnant of the native Indians of Florida. They stepped out into the water, without the least hesitation, and stood there while we talked. I asked the older one a great many questions. Some of them evidently taxed his learning and intelligence somewhat, for at first he would say he didn't know; and then after studying a while he would give an answer a little at a time. He said he was married; had a squaw of his own; that his name was Billy Ham. He said they had over in their camp a "horse-wagon." I joked friend Poppleton on being behind the Indians in methods of locomotion. The boy had nothing on but a thin calico shirt, and his hair was clipped except a tuft just on top, and yet he seemed to be perfectly indifferent to the brisk north wind. I told friend P. I would give thousands of dollars for such a constitution as these Indians have. They were exceedingly pleasant and friendly, and I could not but admire the manly frankness of the older one, especially his readiness to say he didn't know, when such was the case, and his willingness to give me all the information he could possibly scrape up on any point I was curious about. Although help is needed on the pineapple grounds, and good wages are offered (\$1.50 per day for good stout men), these Indians never hire out, friend P. says. The squaws do the work while the men shoot deer, and then peddle them out among the white people, with their canoes. After he had sold us a half of venison he inquired for oranges and then honey. We sold him some of the latter for 60 cts. a gallon, he promising to bring back the pail. Friend P. says they are straight and fair; have one price for what they have to sell, and always pay down without any attempt to beat down the price they are charged. Billy had a tunic of many colors, with flounces and fancy stitching that was so neatly done a schoolgirl might be proud of it. When I asked him who made it he answered, "Me," pointing to himself; and when I expressed wonder and surprise he said they had a sewing-machine. You see, the Indians are beginning to "catch on" to the latest form of civilization. The men are doing the women's work, and the women are doing—well, we don't know what they are going to do when they get settled down to it. Now, the Bible says it is wicked to covet; but I want that seven-year-old boy more than I have wanted any thing else in a long time. I feel just as sure I could bring that boy up, God helping me, so he would be a good boy and a Christian, as that I could grow pineapples if I lived next to friend Poppleton. Well, suppose we get back to the pineapples, as we are pretty nearly around to it.

When I asked friend Poppleton if stable manure wouldn't be cheaper than chemical fertilizers, he laughed at me and asked where they

would go to get stable manure. In the first place, there are no stables; second, there are not any horses anywhere within miles, and there are no roads on which to travel, even if there were horses. Neither are there any wagons. Every house is planted by the river, and in front of the door there is a wharf or landing where one or more boats are tied up. People go everywhere in boats. They ship their products in boats. The oranges and pineapples are all wheeled down to the landing in wheelbarrows; and, by the way, the manufacturers of wheelbarrows will please take notice right here. They are to make some with a light steel tire at least four inches wide. Furthermore, this steel tire, and, in fact, the whole wheel, is to be galvanized so it will stand the salt sea-water. There are miles and miles of country down here where wheelbarrows are almost the only vehicles used in gathering crops, and they should be made so they can run over the soft sand, and go clear down to the beach and into the salt water.

A LETTER TO MY SUNDAY-SCHOOL CLASS; WHAT I FOUND IN THE SALT WATER.

It was the last day of February that I stepped on board a little steamer to ride from Punta Gorda to Fort Myers. Our route lay down through Charlotte Harbor, around Pine Island, and finally up the Caloosahatchee River. While most of the passengers proceeded to pass the day reading papers, talking politics, etc., I decided to find out what I could of the inhabitants of the tropical deep. I felt sure that, by practice and study, I could learn to see fish in the water, like the old veteran fisherman, and in a little time I was rewarded by seeing great numbers of a round light-colored fish which the captain said were "needle-fish," a species of gar. These dart about with incredible rapidity, and one must get his eye trained before he can follow them. They have a long ducklike bill, and the fish are from one to two feet in length. As the boat comes along, they, in their fright, often run right in front of it, and sometimes even jump out of water. Very soon I thought I could in many places see the bottom, and the captain told me I was right.* The sea-water is often very clear and clean, having only a greenish tinge; and the pure white sand at the bottom makes it very easy to see any object. Think of looking over the side of a steamboat, and seeing the bottom as you go along, and seeing also almost every object quite plainly. I soon found crabs and turtles; and finally I started back in fright, for a hideous creature as big as a cooking-stove, with spotted wings, came almost up to the surface, and seemed to care very little for me or the steamboat. His tail stuck out like that of a turtle, and his wings were painted as gay as if made of curtain calico. The captain said it was called "whippera," and is near akin to the order of devil-fish.

A school of porpoises came next, and they evidently proposed to give me a better chance to get acquainted. They rolled and tumbled partly out of the water until I became very anxious to see the whole of one at once; and just about then one of them seemed to say, "All right; we will do almost any thing to accommodate 'brother Root,' since he has come clear down here to see us." And, suiting the action to the word, he hopped clear out of the water, going out head first, and going back in head first. Now, boys, think of a fish as big

as any one of you doing that, and you get something of the idea. About this time I said to the engineer I would give a silver dollar to see one of these chaps up close; and almost as soon as I had spoken, two of them turned summersaults so close to me I could easily have touched them with a common fish-pole. Well, now, even this was not all of the "show," for I had hardly taken my position again at the prow of the boat, down near the water, when I saw two beautiful cream-colored fish, just before the boat, scudding along like a nicely matched pair of colts; they were almost as large as horses, and one could easily imagine they were pulling the boat exactly as horses pull a buggy. I thought they were running in front of us, as cows get frightened and run before a locomotive; but the mate of the boat said they were only big porpoises "at play," and he says they often run in front of the boat and play in just that way. Pretty soon the captain asked me to leave my fish and come to dinner; and then the cook of the boat said he had prepared some "speckled trout" expressly for "Mr. Root's dinner;" so you see I had a nice time all around. For dessert the cook brought us some very fine guavas. If you don't know what a guava is, just imagine a nice strawberry as big as a large peach, and you will have it pretty nearly. They grow on trees, and the trees bear fruit almost every month in the year.

I spent the whole day in the way I have told you, and enjoyed every hour of the trip. One secret of the enjoyment was, that I made friends with every one of the five men who run the boat. Some of the passengers came to see the wonderful things I was finding down in the "briny deep," but they said they couldn't see a thing. You see, they hadn't the patience to sit down to learn how. If we only look carefully we shall find—

Sermons in stones, books in running brooks,
And God in every thing.

Everybody is catching fish down here. The mate told me a party of "women" who stood on the dock and threw in their lines caught *two hundred* "big ones" in about two hours.

A. I. R.'S NOTES OF TRAVEL: DOES HE PAINT THE PICTURES IN TOO ROSY COLORS?

Mr. Ernest Root:—Excuse my freedom in offering a few words in regard to the last travels through Alabama, Georgia, and Florida. I am surprised to see that country so enthusiastically—yes, "eccentrically" palmed off. It is "just slick," that "Dixie Land," etc.; and this, too, notwithstanding the disastrous drouth, hard freezing, poor and sandy soil, poor houses, no windows, etc. It is ridiculous. I have seen houses in the South made of *barrel-staves*, and many other things according. I am sorry that your father started out in such high "tune," "big-bug like." He has forgotten all about the thousands in Florida who lost nearly all they had by the last disastrous frost, when he speaks of Jacksonville. That's all right for rich men; but how is it for those whose means are limited, who are encouraged by such writings? I could send you letters from Florida, from men who live there, that would open your father's eyes. One of my neighbors sold his nice home here, on account of just such reports, and went to Florida last fall, and is now back again, after spending nearly all he had. I have also seen the same thing through Texas this winter, and that is why I write this, not to find fault with your father, for he has written many good articles, from which I have learned much.

I was at the midwinter convention at Mrs. Atchley's, at the time of the hard freeze. The

*It may be well to mention that our little steamer is made for shallow water, and draws only about six feet; therefore, when the water is from seven to ten feet deep, and *clear*, I can see almost every fish, little and big.

"Sunny Southlanders" didn't have much to say, but all closed up to the fireplace.

I remember you and your mother well, from seeing you at the World's Fair convention. It struck me you were "mother herself" in looks, outside and inside. C. THEILMAN.

Theilmanton, Minn., Feb. 8.

[This, as our readers will see, was forwarded to A. I. R. himself, who replies.—E. R.]

Many thanks, good friend T., for your timely caution; but I must think you overestimate the danger. If you read my notes carefully you will see I mentioned the poor dwellings with wind blowing under the floors, etc. Surely no one will think of "pulling up stakes" and rushing down to "Dixie" on account of the pen-picture I gave Huber. It was mostly to contrast the difference between Dixie, and snow a foot deep and zero, that I wrote it. Suppose I should, in my travels anywhere (say through *Minnesota*, for instance) write up all the disagreeable things, tell of the tumble-down buildings, deserted farms, untimely frosts and drouths, etc. Would anybody want to read such "travels"? and would it do any good? Even our pleasant town of Medina, where I have lived, grown, and prospered, is often called the "meanest place on earth;" "farming doesn't pay," and all kinds of business are "overdone," to people who always wear that kind of "spectacles." Now, Florida is much like Medina, unless you look for its bright side, and take in its *redeeming* features. There are lots of tumble-down houses, slipshod gardening, and dilapidated orange-groves. By the way, a neglected orange-grove is about as *sorry* a looking place as one can well imagine. Perhaps there never was a time more unfavorable for writing up Florida than this very winter I have chosen; but you see by my notes I still find a world full of interesting things—a world full, too, of opportunities to go to work and get *good pay* for your work. Back of it all, I see continually the hand of the *unseen God*, the hand of the *living Father*.

Thursday Feb. 7.—During the afternoon at Gifford, Florida, the thermometer stood at 72°. Next morning at sunrise it was down to 22°—a fall of *fifty degrees* in 12 hours! The greater part of all the garden stuff in the State was killed outright, the *second time*, in just one winter. People had just begun to recover, and to get courage, since their December losses, and now here we are again. I say *we* for I feel as if I were a part of Florida now. Shall I write this up as a part of the bad features of Florida? Of course, it indicates that *now* and *then** we must expect disasters down here. But, dear friends, crops fail and losses occur *everywhere*.

Since I have been a Christian my disposition is to see sunshine, even through black clouds; and my travels in any land will take in naturally the sunny features; but I think that, if you look carefully, you will find I have faithfully mentioned, also, most of the unpleasant things.—A. I. R.

HOME AGAIN.

Here I am, March 13th, back again in the land of mud, dampness, and frost. Florida is gone—gone in a brief 48 hours; gone with its clean sand and sunshine; gone like a bright dream. I have traveled through it something like 1500 miles, and didn't find mud enough to scarcely need to brush off my pant-legs once. Mrs. Root will tell you it *must* be a wonderfully *clean* place. True; but you can't get any

crops down there like those here on our Medina clay, without a tremendous sight of fertilizers of some kind, and you have to keep putting on the fertilizers for every crop you raise.

After leaving the East Coast I visited in succession Sanford, Oakland, Tarpon Springs, St. Petersburg, Manatee, Tampa, Thonotosassa, Lakeland, Bowling Green, Avon Park, Kissington Springs, Homeland, Bartow, Punta Gorda, Fort Myers, Orlando, Tavares, Mt. Dora, Blue Springs, Orange City, Lake Helen, Palatka, Lake City, and Green Cove Springs. The only place where I found orange-trees full of foliage, fruit, and blossoms, was at Ft. Myers; and I made in that vicinity a still bigger "find" for bee-keepers—at least, I consider it so. You have all doubtless noticed what our good veteran friend Poppleton has to say about the destruction of the black mangrove on the East Coast. Well, imagine my feelings when the men who ran the steamer told me the rank vegetation which covers the numberless islands on Charlotte Harbor was *black mangrove*, and almost nothing else. As nearly as I can learn, but few bee-keepers have ever located on or near these islands; but I am told the woods is so full of wild honey it is brought in in large quantities. We shall at once open up correspondence with all the bee-keepers we can find in that vicinity. Here seems to be a chance for the migratory brethren. This point is so far south, the mangrove seems to be entirely unharmed. My Florida notes will, in full, go through several months yet. I shall be glad to answer any questions that my notes do not answer.

KIND WORDS FROM OUR CUSTOMERS.

The much-talked of Crane smoker is received, and was thoroughly tested, which resulted in proving all that is claimed for this pride of the apiary. Reibersville, O., Feb. 25. J. A. GOLDEN.

Order No. 35,286, you shipped Feb. 8. I received Feb. 28, 5 boxes. They are in good shape. The foundation is very nice, good color—a great deal better quality than I have been using. The freight was very low—78 cents. I shall put the hives together next week, then I will write you how I like them. WM. R. PAGE.

Avon, N. Y., March 1.

BEST LOT OF BEE-FIXTURES HE EVER HAD.

Goods came to hand all right. Some of the boxes were split pretty badly, and the lamp was broken; but I must say they were the best lot of bee-fixtures I ever had. Everything fit nicely. I am 67 years old, and have had bees since I was a boy. Cline, Tex., Feb. 2. W. H. BEASLEY.

We have sent A. I. Root one of the latest improved queen-traps. Those who purchase traps of him the coming season will get the most complete queen-trap ever used. The new trap will soon be illustrated and described in *GLEANINGS*.

A. I. Root has sold more of our drone-and-queen traps than any other firm. We predict that, in the near future, the Root's will be about all the bee-supply dealers in the country. Medina will be the head center, and their supplies will be found on sale in every State in the Union. They now have a branch supply office in the State of Florida.

"Quality, not cheapness," is their new motto. That has the right ring to it. Success for Bro. Root was established years ago.—*American Apiculturist*.

THAT CAR OF BEE-GOODS, AND HOW THEY PLEASE.

The car of bee-keepers' supplies has arrived, and is unloaded. I have not had a chance to check up all the small articles; but so far as I have checked, everything is O. K. The hives and sections are even nicer, if any thing, than the last car was, and we are all delighted with the "bee notions," as we call them. I think you can count on an order for the next car of goods I need. W. O. VICTOR.

Wharton, Tex., Mar. 8.

*I believe the Weather Bureau will bear me out in the assertion that no such winter has occurred here before in *fifty years*.—A. I. R.

Still in the Lead!

Hilton's
Chaff
Hives,

White
Polished
Sections,

T Supers,
Foundation,
Smokers,

and every thing needed in the apiary.

Send for 1895 catalog.

GEO. E. HILTON, = = Fremont, Mich.

Best on Earth.



Bingham's five sizes of bee-smokers range in price from 50c to \$1.75 per mail, and are the lowest-priced of any in the market, according to size. Bingham Smokers and Knives are made only by the inventor, and can be depended on every time, as they have been for 16 years as the best that could be made or used.



Mention GLEANINGS, and send for circular of prices.

T. F. BINGHAM, Abronia, Mich.



DON'T MONKEY NOW.

Send for our 36-page catalog free.

Root Co.'s Supplies kept in stock.

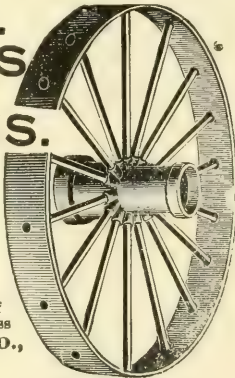
We can save you freight. Let us know what you need for the apiary. Get our prices.

JNO. NEBEL & SON, High Hill, Mo.

METAL WHEELS for your WAGONS.

Any size you want, 20 to 56 in. high. Tires 1 to 8 in. wide—hubs to fit any axle. Saves Cost many times in a season to have set of low wheels to fit your wagon for hauling grain, fodder, manure, hogs, &c. No resetting of tires. Cat'l'g free. Address

EMPIRE MFG. CO.,
Quincy, Ill.



500 Barrels Sweet-Potato Seed.

Yellow Jersey, best variety, \$3.00 per barrel.

Red Spanish, Red Bermuda, and Jersey Queen, \$4.00 per barrel; 5% discount on 5-barrel lots.

Our stock is fine. Order now and secure a supply at reasonable prices.
L. H. MAHAN,
Box 143, Terre Haute, Ind.

My new Catalogue of

Small Fruits, Free

To every reader of this journal. All leading old and new varieties. **Largest stock in Ohio.** **Lowest prices.** Many new novelties, such as Greenville and Timbrell strawberries, Eureka and Miller raspberries, Eldorado and Ohmer blackberries, North Star currants, Crosby peach, etc., etc. Catalogue free.

New Carlisle, O. W. N. Scarff.

My Strawberry Catalog

FREE to all.

C. N. Flansburgh, Leslie, Mich.

In responding to this advertisement mention GLEANINGS.

STRAWBERRY AND Best New and Old varie-
RASPBERRY PLANTS. ties. Best grown Plants.
Catalog Free. With in-
structions for their culture. Send for it Now.
Mention this paper. Address
P. O. Box 213. E. J. SCOFIELD, Hanover, Wis.

USE THE

COMMON-SENSE

BERRY-CRATES and BASKETS.

None cheaper. For circular address

either

H. H. AULTFATHER, MINERVA, O.

Sweetheart.

A Regular Sugar Lump.

LEADS Early, Large, Handsome, Good Ship-
ALL per, Best Quality. Send for circular
WATER- giving important facts to growers and
MELONS shippers, with comparative sales and
ON opinions of many commission men in
THE leading northern markets.
MARKET. Seed, Packet, 10 cts.; lb., \$1 50.

ALBERT WITTENMYER,

Originator, Grower, and Shipper.

Emison, Knox Co., Ind.

CHOICE

SWEET-POTATO SEED

Yellow Jersey (the best), Red Bermuda, and Yellow Nansemond, at \$2.50 for 11-peck barrels, till sold out.

L. H. REDD, De Soto, Illinois.

The New Craig Seedling Potato.

For full description of this Potato, see page 959 of this journal for Dec. 15, 1894. Prices: 1 lb by mail, postpaid, 25 cts.; ½ peck, by freight or express, \$1.00; peck, \$1.75; ½ bushel, \$3.00; bushel, \$5.00; barrel of 11 pecks, \$12.50. The above prices will hold good as long as our stock lasts. All orders by mail will be filled as soon as received. Orders by express will be shipped at once unless ordered otherwise. All orders for potatoes by freight will be filled April 1, or soon after that time, unless directions are given to ship at an earlier date. In this latter case I do not assume responsibility for loss in freezing; but where it is desirable to ship earlier, and customers have had luck, I expect to help them out so far as I can consistently. In regard to my responsibility I would refer you to A. I. Root. In fact, where it is more convenient you can order potatoes of the A. I. Root Co., instead of sending your orders to me.

GEO. E. CRAIG, Zimmer, Franklin Co., O.

B 4 U Buy Seeds

Send for my or
Annual Catalog. Plants,

It is neatly gotten up; no old stereotyped matter about it; nothing sensational. The Best Varieties truthfully described and honestly priced. A. I. Root says, "I believe I have read every catalog you have put out clear through, and I wish all seedsmen would tell us their experience with different varieties as frankly as you do." True Prizetaker onion seed and plants a specialty. Vegetable and small-fruit plants of all kinds, trees, and supplies for gardeners. Send for free catalog at once, or send 10c for catalog, a pkt. of a new smooth very early tomato, a pkt. of the best new lettuce, a pkt. of true Prizetaker onion, and a pkt. of choice flower seeds, all for 10 cents.

Christian Weckesser, Niagara Falls, N. Y.

Best ~ Goods

At lowest prices are what we are all after. The *quality* of Cary's goods has never been questioned. His X X white thin foundation and polished one-piece sections are the finest on the market. His bees and queens are from the best strains, and reared and shipped in the way that long years of experience have shown to be the best.

He has the largest stock of **BEE-KEEPERS' SUPPLIES** in New England; and as to prices you have only to send for a catalog and compare them with those of other dealers.

To those living in the East, there is the still further consideration of low freight rates. Address

W. W. CARY,
COLRAIN, MASS.

300 Colonies Of A No. 1 Italian bees in 8-frame Dov. hives *cheap*. Queens, bees by the pound, and a full line of new first-class apiarian supplies. Send for catalog to Box 783, Belleville, Ill.
E. T. FLANAGAN.

Tested Italian Queens.

I will offer for sale in April, tested Italian queens bred for business and gentleness. Leather-colored queens at 90 cts. each; 3 for \$2.50; 6 for \$4.50. Tested golden Italians, yellow to the tip, bred for business and beauty, easy to handle, \$1.00 each; 6 for \$5.00. Will have untested Italian queens ready to mail the 1st of May at 75 cts. each; 3 for \$2.00; 6 for \$4.00. Bred from the best 5-banded stock, free from disease.
W. A. COMPTON, Lynnville, Giles Co., Tenn.

WINTER soon is over!

And if you contemplate buying Bees and Queens You will do well to write For prices to

eltr

LEININGER BROS., FT. JENNINGS, O.

W. O. Victor, of Wharton, Tex., took

45,000 Lbs. of Honey in 1894.

He offers Italian Queens—good, old-style honey-queens—untested, first order, to any address, at 50c each. Also bees in any quantity; 450 colonies to draw from. **Root's goods constantly in stock.** Prices to suit the times. Buy near home, and save freight.

25 Imported Carniolans

Ready for immediate delivery at \$5 each. Bred in 1894 at the most elevated point among the Carnic Alps where bees are kept. Daughters of these queens ready in April, \$1 each; \$10 per doz. Address

The Carniolan Apiaries, Charlton Heights, Md.

2 and 3 frame nuclei cheap by the dozen.
AUG. LEYVRAZ, Francis, Fla.

The Southern Home of the Honey-Bee

Is ready for your orders for 3 or 5 banded queens, as good as the best, guaranteed free from paralysis. Warranted queens, 75c each; tested, \$1.00. After June 1, warranted, 50c each; tested, 75c each. Good breeders, \$2.00. Straight 5-banded, or "faultless," queens, \$2.50 each. Special prices on lots, also to the queen-dealer. Safe delivery and satisfaction guaranteed. Circular free. Address

HUFSTEDLER BROS., Clarksville, Tex.

MUTH'S HONEY-EXTRACTOR, SQUARE GLASS HONEY-JARS.

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "**Practical Hints**" will be mailed for 10c in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.

Hives, Sections, Foundation, Bees, Queens,

Or any thing a Bee-keeper Needs.

In April and May I will receive from the South, (via steamer) cases of 8 frames of capped brood, well covered with bees. These are *just right* to build up colonies with.

Single frame, 90c; 4 frames, \$3.25; 8 frames, \$3.25; 8 frames, \$6.00; 16 frames, \$11.00.

Untested queens included for 90 cents.

Everything sent from this city. Let me know your wants. Catalog free.

I. J. Stringham, 105 Park Place, N. Y. City.

Golden Queens From Texas.



My queens are bred for business, as well as for beauty and gentleness. Safe arrival and reasonable satisfaction guaranteed. Untested, \$1.00; tested, \$1.50.

Write for price list.

5-16ei

J. D. GIVENS, Lisbon, Texas. Box 3.

1895 To my customers and friends: Please remember that W. H. Laws is again headquarters for Italian queens. I breed nothing but large, well-developed queens, either Golden or Leather-colored. My Golden strain is from Doolittle's original one-hundred-dollar queen, sent me after he had reared over 1000 queens from her. For business and beauty, my bees are unexcelled. Price of queens, each, \$1.00; 6 for \$4.50. Tested, \$1.25. Breeders, \$2 to \$3. Address

W. H. LAWS, Lavaca, Seb. Co., Ark.

Dovetailed Hives.

Sections, Extractors, Smokers, and everything a Bee-keepers wants. **Honest Goods at Close Honest Prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

Early Queens By Return Mail.

Choice Tested Italians, vigorous and prolific, \$1.00 each.

These queens were reared in the fall of '94 for our early spring trade, and are guaranteed to give satisfaction.

J. W. K. SHAW & CO.,
Loreauville, Iberia Parish, La.
Please mention this paper.



HONEY MARKET.

The demand for extracted honey is good, and we could handle some more choice lots of basswood honey in 60-lb. cans. If you have any to offer, let us hear from you with sample. Our prices for comb and extracted honey remain as quoted in our last issue.

ALSIKE CLOVER SEED.

We have a good stock of choice seed, and there is no better time to sow than the present month. Market is usually firmer, and prices higher, at this season and later. This year seems to be an exception so far. It is being sold at about the same price as medium and large clover. Our price for the present is, \$2.00 per peck; \$3.80 per half bushel; \$7.20 per bushel; \$14.00 for 2 bushels; 5 bushels or over, at \$6.60, bags included in each case.

BUSINESS AT THIS DATE.

Orders are coming in freely, and we have several railroad orders booked not yet shipped. We have been obliged to shut down our wood working department for a week to make repairs in our boiler and steam-plant, which could not wait any longer. Besides, la grippe has come upon us with force, and temporarily laid off for a few days some of our most efficient helpers. If there is some little delay in attending to your wants, we trust you will bear with us. Providence permitting, we trust all will be at their post again soon with their usual vigor.

BEESWAX WANTED.

The scarcity of beeswax continues, and markets are bare, and prices are stiffening. If this continues much longer we shall be compelled to make another advance in the price of comb foundation. We are hoping that, with the opening of spring and the return of the junk peddler to his usual summer vocation, the supply may be more plentiful, and the upward tendency of price checked. We increase our offer again 1c per lb., and will pay 29c cash, 32 in trade, for average wax delivered here. We need all we can get for making comb foundation, and for the present we will not offer wax for sale.

MAPLE SUGAR AND SYRUP.

As we go to press, no new maple sugar or syrup has been brought to market; but we are daily expecting it, and propose to furnish it as in former years. We usually have three grades of sugar which we will offer for the present at the same prices as formerly—8, 9, and 10 cts. per lb.; $\frac{1}{2}$ c less in 50-lb lots; 1c less in barrel lots. If price should be lower, we will give you more sugar for the money you send. Maple syrup of choice quality will be worth \$1.00 per gallon in 10-gallon lots; single gallon, \$1.10. We shall be pleased to book orders for the first supply that is brought in; and if prices are lower we will give you the benefit, and quote in next issue the best prices we can make.

A BOOKLET ON BEES AND FRUIT.

This is about the season of the year, or will be soon, when the interest of the bee-keeper and fruit-grower sometimes comes in conflict. It will be remembered that, last year, we got out a special pamphlet showing that bees and fruit do not conflict; that they are mutually interdependent on each other to a very great extent. This year we have a revised booklet of 16 pages that gives all the evidence that we have been able to gather together for the last three or four years, boiled down in a nutshell; and the matter is put in such a way that the fruit-grower, if he is intelligent and fair, will be willing to accept the evidence, and thus unpleasant feelings and perhaps a suit for alleged damages may be averted. We will furnish it at the bare cost of printing, postage, and wrapping, because we feel that they ought to be very liberally distributed in almost every locality. Price for 25, 25 cts.; 50 for 40 cts.; 100 for 75 cts., postage prepaid in each case.

THE SEED BUSINESS MARCH 15, 1895.

I find our people have been doing quite a brisk trade during my absence, and certain lines of seed have advanced considerably, owing to the widespread drouth of last season. I shall, however, continue to furnish every thing at the prices given in our catalog, with the exception of the Red Wethersfield onions. Instead of the prices given in the catalog, read as follows: Oz., 10c; lb., \$1.25; 10 lbs., \$10.00. We can fill orders for all kinds of potatoes, at the prices given in our issue for Jan. 15, with the exception of the second-size Rural New-Yorker. These all run so large that there is no more second-size left.

I would call special attention to our late-grown Monroe Seedlings, such as we had last year. They were dug and put into the cellar at the very last minute. In fact, our grower, Mr. Wilbur Fenn, of Tallmadge, O., came pretty near getting caught by the frost; but he managed to get his whole crop into the cellar in nice shape. The consequence is, they are as nice and firm as the day they were dug; and if you want some first-class table potatoes, I think these will suit; and at the price we offer them, \$2.50 per barrel, they are almost as cheap as any thing you are likely to get in the market, for table use.

Now in regard to shipping potatoes. As soon after the 1st of April as the weather seems favorable, we send out all potatoes, unless we are notified to the contrary by the purchaser. If not notified, we shall expect them to go at your risk. Therefore please write us at once, if you want us to keep your potatoes for you later than the 1st of April. We have arrangements to keep them clear through the month of April, with very little danger from sprouting. A. I. R.

VEGETABLE PLANTS READY MARCH 15.

Our boys, Fred and Frank (the ones who put the roof on the greenhouse), have managed so well in my absence that we now have a fine stock of cold-frame cabbage-plants, onion-plants, lettuce-plants, and celery plants, ready to send out. We have also a splendid lot of both one and two year old asparagus-roots; also rhubarb-roots one year old, and large ones for forcing in hot-beds, or under the benches in greenhouses. For prices of all the above, see our catalog, mailed free on application. Large rhubarb-roots, just right for forcing, for early pie-material, \$3.50 per 100 roots. These latter (the large roots) are packed in barrels, and shipped by freight from Mercersburg, Pa. A. I. R.

At present writing, March 14, the season is quite backward; in fact, no maple sugar or syrup has been brought in. This is exceedingly unusual, as we generally get more or less during the month of February. A. I. R.

Kind Words From Our Customers.

I have a fault to find with GLEANINGS—it takes so much time to read it! I hardly get one half read until the next one comes. It is all cream and no skim milk, as they say. DANIEL E. ROBBINS.
Payson, Ill., Mar. 6.

OUR GOODS NO. 1 IN WORKMANSHIP, AND CHEAPER THAN THE RAW MATERIAL.

I received the hives, etc., to-day, in good order, and am more than satisfied with them. Every thing is finished up in a No. 1 workmanlike style; and after paying freight I find they come cheaper than the raw material. I am sorry I did not order more; but as I am an amateur I will make out with what I have this year. FRANK WOOLLARD.
Savannah, Ga., Mar. 9.



FOWLS AND EGGS

17-STANDARD BREEDS—17
All eggs sold from birds scoring
92 points and upwards.
Our large Catalogue mailed on receipt
of 4 cents. Circulars FREE.
F. S. STAHL, Quincy, Illinois

Notice.



Pacific Coast

We are Northwestern Agents for The A. I. Root Company's supplies, and can make prices that will interest you. Send us a list of your wants, and see if we can not save you money.

POSSON'S SEED STORE,

Portland, Oregon.

Bee-keepers.



BEE-KEEPERS' SUPPLIES FOR 1895.

Such as Dovetailed Hives, Sections, Comb Foundation, Extractors, and every thing else used by a bee-keeper. All late improved goods. Immense stock. Goods sold at wholesale and retail. Write for our

DISCOUNTS FOR EARLY ORDERS.

Alsike clover and Japanese buckwheat furnished at lowest market price.

Address **JOSEPH NYSEWANDER, Des Moines, Iowa.**

Root's Goods at Root's Prices,

May be had, with occasional exceptions, of the following agencies in the territory named.

Eastern and Central New York, N. E. Pennsylvania, North New Jersey, and adjacent New England territory, of F. A. Salisbury, Syracuse, N. Y.

S. E. Pennsylvania and South New Jersey, Wm. A. Selzer, No. 10 Vine St., Philadelphia, Pa.

Maryland and Delaware, Rawlings Implement Co., Baltimore, Md.

Florida, A. F. Brown, San Mateo, Fla.

Minnesota and Dakotas, H. G. Acklin, 1024 Mississippi Street, St. Paul, Minn.

Michigan, M. H. Hunt, Bell Branch, Mich., near Detroit.

Indiana, Walter S. Pouder, Indianapolis, Ind.

Southern Ohio, Kentucky, and Tennessee, Chas. F. Muth & Son, Cincinnati, O.

Iowa, Jos. Nysewander, Des Moines, Iowa.

Besides a multitude of other dealers and agents too numerous to mention, who buy in smaller quantities than carloads.

When you buy Root's goods you know what you are getting, and can depend on getting the best and most practical bee-keepers' supplies of all kinds that are made

The A. I. Root Co., = = = Medina, Ohio.

Patents Pending

On new process, new machines, new product, in manufacture of comb foundation.

Result:

Lowest prices, best work. Samples and price list free. Wax wanted.

W. J. Finch, Jr.,
Springfield, Ill.

LARGE yellow tested queens, delivered as the weather will permit, at 75c each, \$8.00 per dozen. **Solid yellow** breeders, \$1.50; young and prolific. Safe delivery. Money-order office, Decatur. **Cleveland Bros.,** Stamper, Newton Co., Miss.

3=Banded Italian Queens,
from my own imported queens, \$1.00 each.
Max Brauer, Beeville, Bee Co., Tex.



I am manufacturing
BEE-KEEPERS' SUPPLIES.
Every thing you need.
PRICES REDUCED.
Send for new Price List.
GEO. RALL, Frenchville, Wis.
Trempealeau Co.

Fruit and Bee Ranch for Sale.

Address **REV. L. J. TEMPLIN, Canon City, Col.**

Eggs for Hatching From Prize - Winning Fowls, 50c and \$1.00 per 15.
Send for circular.
AUGUST GOETZE & SON,
3822 Wood St., Wheeling, W. Va.

3 Great Seedman Potatoes. Read Your Catalogue.

That **great** Carman No. 1 (10 lbs. grew 24 bushels); Maule's Irish Daisy; and Everett's Onward (new); all three mailed, 50c (large, \$1). $\frac{1}{4}$ bu. each of Puritan, Rural New Yorker No. 2, American Wonder, and Everett's Early Six Weeks, with 1 lb. your choice, \$2.00. Last four named, \$3.00 per barrel.

Smith's Stock and Seed Farm,
Padelfords, N. Y.

Alsike Clover Seed

For Sale. \$6 per Bush.

One bushel or more, sack included.
Silverhull Buckwheat, 75c per bushel.

W. D. SOPER & SON, Box 565, Jackson, Mich.

Gladiolus Bulbs

Fine mixed, 25c per doz.
Common mixed, 18c
Maria Lemoine (orchid marked), 25c per doz.; Maria Lemoine bulb (ts, 10, 15, and 20c per 100. All postpaid.
FAT KENNEL GROWER, ROCHESTER, N. Y. BOX 2.



STAHLS EXCELSIOR

Spraying Outfits kill insects, prevent leaf blight and wormy fruit. Insure a heavy yield of all fruit and vegetable crops. Thousands in use. Send 6 cts. for catalog and full treatise on spraying. Circulars free. Address

WILLIAM STAHL, QUINCY, ILL.

SIMPLEX HATCHER & BROODER Combined.



THE MOST PERFECT Incubator Made. Hatches every egg that a hen could hatch; Regulates itself automatically; Reduces the cost of poultry raising to a minimum. Send for Illustrated Catalogue

160 Egg size \$16.00.
SIMPLEX MFG. CO. Quincy, Ill.

Promptness is What Counts.

Honey-jars, Shipping-cases, and every thing that bee-keepers use. Root's Goods at Root's Prices, and the Best Shipping-point in the Country. Dealers in Honey and Beeswax. Catalog free.

WALTER S. POWDER,
162 Massachusetts Ave., Indianapolis, Ind.



PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

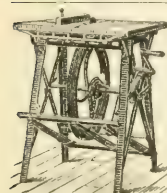
Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,

12tfdb Sole Manufacturers,
Sprout Brook, Montgomery Co., N. Y.



Read what J. I. PARENT, of CHARLTON, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw."

It will do all you say it will."

Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to

THE A. I. ROOT CO.



WOVEN WIRE FENCE

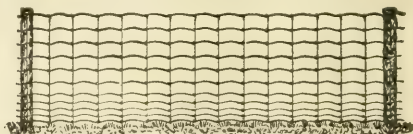
Horse high, bull strong, pig and chicken tight. Make it yourself for **13 to 20 cents** a Rod. 50 styles. A man and boy can make 40 to 60 rods a day. Catalog free.

KITSELMAN BROS., Ridgeville, Ind.

BEGINNERS.

Beginners should have a copy of the Amateur Bee keeper, a 70-page book by Prof. J. W. Rouse. Price 25 cents; if sent by mail, 28c. The little book and the Progressive Bee keeper (a live progressive 28-page monthly journal) one year, 65c. Address any first-class dealer, or

LEAHY MFG. CO., HIGGINSVILLE, MO.



There is No Substitute

For **ELASTICITY** in a wire fence. Ever since the Page became generally known, men have been racking their brains to discover one, and hundreds of devices have been brought out with extravagant claims, run their short course and dropped out of the race. If it were possible to make a good, durable efficient fence of common cheap soft wire, the Page Company would use it. Every pound of our wire is made to order. Its quality, combined with the **COIL**, gives the only elastic fence.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

In responding to this advertisement mention GLEANINGS.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc.

PAGE & LYON MFG. CO.,
Stfbb New London, Wis.



HATCH CHICKENS BY STEAM
WITH THE MODEL EXCELSIOR INCUBATOR.

Thousands in Successful Operation. SIMPLE, PERFECT, and SELF-REGULATING. Guaranteed to hatch a larger percentage of fertile eggs, at less cost, than any other incubator. Send 6c. for Blue Catalog. Circulars Free.

Lowest priced First class Hatcher made.

Geo. H. STAHL, 114 to 122 S. 6th St., Quincy, Ill.



ONE MAN WITH THE UNION COMBINATION SAW Can do the work of four men using hand tools, in Ripping, Cutting off, Mitering, Rabbing, Grooving, Gaining, Dadoing, Edging-up, Jointing Stuff, etc. Full Line of Foot and Hand Power Machinery. Sold on Trial. Catalog Free. 1-24ei

SENECA FALLS MFG. CO.,
44 Water St., Seneca Falls, N. Y.



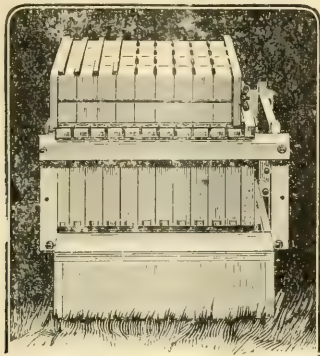
TRUSSES on 30 Days Trial

Easy, durable and cheap. A radical cure effected. Send for sealed catalogue.

EGGLESTON TRUSS CO., Masonic Temple, Chicago, Ill.

THE

Aspinwall Hive



THE HIVE FOR BEES.

THE HIVE FOR BEE-KEEPERS.

Aspinwall Manufacturing Co.,
Jackson, Mich.

Notice!

We beg to announce that we have completed arrangements with the Porters whereby we secure for this country the control of the sale of that very excellent and almost indispensable implement,

The Porter Bee-Escape.

It will be manufactured by the Porters, as formerly, but write to us for prices in both large and small quantities.

The A. I. Root Co., Medina, O.

WE WILL PREPAY

Freight charges on orders for Root's polished sections, and 16-section white basswood shipping-cases, at his prices, to be shipped from factory to points within 300 miles, in lots of 5000 and 200 or over respectively. Send for cata or.

B. WALKER, Evert, Mich.

We would not have expended

HUNDREDS OF THOUSANDS OF DOLLARS

doing galvanizing, for which we made no extra charge, had there not been merit in it. Galvanizing consists in coating the strong but most perishable (in thin sheets) metal, steel, with the almost indestructible (even when very thin) metals, zinc and aluminum. If there were not great merit in galvanizing, no one would pay 1/4 more for galvanized barrel wire or sheet iron than ungalvanized costs. If we were making painted windmills to-day, we should furnish an

8 Ft. for \$15

That is a good price for an 8-foot painted windmill.

WE BUILD FOR THE AGES. WE WOULD NOT SELL YOU A POOR, PAINTED WHEEL, FOR AN YVANE OF METAL GALVANIZED BEFORE BEING PUT TOGETHER, IF YOU WOULD PAY US DOUBLE PRICE FOR IT. We build the best we know, and knowing that painted thin sheets are practically worthless, we have nothing to do with them. The enormous cost of preparing to do galvanizing, and of doing it well on a large scale, deters others. SOME BUY GALVANIZED SHEETS AND PUNCH AND SHEAR AND MAKE THEM UP AFTERWARD. WHEELS OR VANES MADE OF GALVANIZED SHEETS RUST OUT FIRST AROUND THE RIVETS, JOINTS, AND EDGES, AND ARE, THEREFORE, NOT SO GOOD AS PAINTED ONES. How any concern can get our prices for painted windmills and painted towers, or those made up of galvanized material, cut, sheared and punched after the galvanizing is done, can only be explained by the fact that people who buy them are ignorant of the value of galvanizing. We now galvanize everything after it is completed, even bolts and nuts. We galvanize with the most improved processes and in the most perfect known and attainable manner.

The process: When a section of an Aermotor Wheel is all riveted up, completed and cleaned of rust and impurities, it is immersed in melted zinc there until it becomes until every crack, and opening of every closed up and saturated molten metal, and pieces composing the soldered and welded then you have some- during and reliable. It is doors cannot afford to do it. aluminum melted from one silvery white coating which every portion of the Aermotor zinc and aluminum when a time, forms, with the steel, alloy, which cannot be indestructible. In our prices of wind- mills, illustration of what we REDENIGING AN OLD IT IN INFINITELY SUPERIORLY SMALL- THE OFFER OF AN ALL-STEEL VERY SUPERIOR FEED CUTTER, WORTH \$10 AS PRICES GO, AT \$10, IN OUR NEXT AD. WE SHALL OFFER YOU SOMETHING OF STILL GREATER INTEREST. Aermotor Co., Chicago.



BEE-KEEPERS' SUPPLIES FOR 1895.

Such as Dovetailed Hives, Sections, Comb Foundation, Extractors, and every thing else used by a bee-keeper. All late improved goods. Immense stock. Goods sold at wholesale and retail. Write for our

DISCOUNTS FOR EARLY ORDERS.

Alsike clover and Japanese buckwheat furnished at lowest market price.

Address JOSEPH NYSEWANDER, Des Moines, Iowa.

Florida Queens

3-Tei

Address until April 15,

bred from my original strain of Maryland Italians, which has given such general satisfaction as honey-producers. Untested queens ready March 1st, \$1.00 each; 6 for \$5.00. Write for prices on large lots and special circular. Safe arrival guaranteed.

CHAS. D. DUVAL, SAN MATEO, FLORIDA.

BURPEE'S FARM ANNUAL for 1895
 "The Leading American Seed Catalogue."
 A handsome book of 171 pages with many new features for 1895—hundreds of illustrations, pictures painted from nature—it tells all about the BEST SEEDS that grow, including rare novelties that cannot be had elsewhere. Any seed planter is welcome to a copy FREE. Send your address to-day on a postal.
 W. ATLEE BURPEE & CO., Seed Growers, PHILADELPHIA.

HONEY COLUMN

CITY MARKETS.

DENVER.—Honey.—There seems to be an improvement in our market; still, the prices remain about the same. No. 1 comb, in 1-lb. sections, 11@12; No. 2, 9@10. Extracted, No. 1 white, in 60-lb. cans (2 in a box), 6@7. We could handle to advantage a quantity of No. 1 comb honey; also pure beeswax at 22@25.

R. K. & J. C. FRISBEE,
Denver, Col.

CHICAGO.—Honey.—We report our market well cleaned up on fancy white comb honey in 1-lb. sections. A neat package and a fancy article would sell quickly at 14c. No. 2 comb, or dark, would not sell at over 10@11. We report better inquiry for extracted, at 5@7, depending on quality. Beeswax selling at 30c.

S. T. FISH & CO.,
189 South Water St., Chicago, Ill.

CHICAGO.—Honey.—During this month a good movement has been felt in the market. Sales have been of small lots each time but sufficiently frequent in occurrence to make the aggregate sales of some volume. White comb of the best grades, 14c; travel-stained or off in color, 13@13½; yellow comb, 10@11; dark, 7@9. Extracted, 5½@7, according to flavor and package; 60-lb. cans of white bring the highest price. Beeswax, 28@30.

R. A. BURNETT & CO.,
163 So. Water St., Chicago, Ill.

DETROIT.—Honey.—Best white comb 14@15; supply moderate. Darker grades, 11@13. Extracted, 6@7. Beeswax in good demand at 28@29.

M. H. HUNT,
Bell Branch, Mich.

PHILADELPHIA.—Honey.—The supply of comb honey is getting low in this market, with considerable call; selling at 11@14, as to quality. Extracted honey in fair demand and good supply at 6@6½c.

WM. A. SELSER,
10 Vine St., Philadelphia, Pa.

BUFFALO.—Honey.—The honey market is getting well cleaned up; fancy exceedingly scarce, selling readily at 13@14; choice, 11@12; commoner grades, 8@9; buckwheat very slow and dull at 8@9.

BATTERSON & CO.,
Buffalo, N. Y.

ALBANY.—Honey.—There has been an unusual demand for both comb and extracted honey since the beginning of Lent, and we have but very little of either now on hand. We would advise parties still having honey to dispose of to forward it at once.

CHAS. McCULLOCH & CO.,
Albany, N. Y.

KANSAS CITY.—Honey.—The demand for comb and extracted continues fair. We quote No. 1 white 1-lb. comb, 14@15; No. 2, 12@13; No. 1 amber, 12@13; No. 2, 10@11; extracted, 4½@6½. Beeswax, 22@25.

C. C. CLEMONS & CO.,
Kansas City, Mo.

KANSAS CITY.—Honey.—The stock of comb honey is large; market well supplied. Fancy white 1-lb. combs, 14; amber, 12. Receipts of extracted light; white, 7; amber, 5½@6; Southern, 4½@5. Beeswax, 22.

HAMBLIN & BEARSS,
Kansas City, Mo.

CLEVELAND.—Honey.—Honey remains at about the same price as in our last quotation. Parties are buying sparingly, and we quote No. 1 fancy 1-lb. sections at 13@14; No. 2, 11@12. White extracted, 6@8. Beeswax, 28@30.

WILLIAMS BROS.,
80 & 82 Broadway, Cleveland, O.

CINCINNATI.—Honey.—There is a fair supply of extracted and comb honey, while demand is slow. We quote extracted honey at 4@7 on arrival. Comb honey, 13@16 in the jobbing way. There is a good demand for beeswax at 25@28 for good to choice yellow.

CHAS. F. MUTH & SON,
Cincinnati, O.

BOSTON.—Honey.—Our market on No. 1 white comb honey is well cleaned up, and it is wanted. Price for comb, 13@14; extracted, 5@6.

E. E. BLAKE & CO.,
Boston, Mass.

Closing out balance of my fine extracted basswood honey at 7c f. o. b. Who is not supplied?

ELIAS FOX, Hillsboro, Wis.

ALFALFA HONEY. very white, thick, and rich. Two 60-lb. cans at 7c. Same, partly from cleome (tinted), 6c. Samples, 8c.

OLIVER FOSTER, Las Animas, Col.

We yet have extracted alfalfa at \$7.80 per box of 120 lbs.

AIKIN BROS., Loveland, Colo.

BEEWAX WANTED.—Will pay 31½c cash for absolutely pure beeswax that will stand chemical test. Write me at once.

WM. A. SELSER, 10 Vine St., Philadelphia, Pa.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb and Prompt.

Queens by Return Mail.

Choice tested Italians, \$1 each. Un-
tested, 75c each. \$8 per doz. These
queens are from fine stock, vigorous
and prolific, and are guaranteed to
be No. 1 honey-gatherers. Send for
price list.

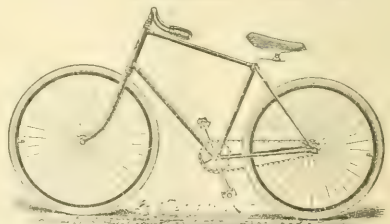
J. W. K. SHAW & CO.,

Loreauville, Iberia Par., La.

Queens. If you want bees that will stand the severest winters, and roll in the most honey in summer, send for price list.

F. B. YOCKEY, NORTH WASHINGTON, PA.

Eggs From 8 leading varieties of fowls, including Imperial Pekin Ducks. Send for descriptive list to J. S. MASON, Medina, O.



FOR SALE! SAFETY BICYCLES, Fitted with pneumatic tires, \$25.00. Remington sporting rifle, 38-40, cost \$17; sell for \$7. Robert B. Gedye, La Salle, Ill.

John F. Nice still has for Sale

25 colonies of *nice* Italian bees in Simp. hive for \$4.00, in chaff hive for \$5.00.
329 Maynard St., Williamsport Pa.

PURE ITALIAN QUEENS,

Postpaid to Australia, \$3.00.
MISS BIANCONCINI,
BOLOGNA, ITALY.

Leather-colored Queens, 40c each, or \$4.00 per dozen, June or after. Orders taken now.
A. T. McKibben, Morrill, Morrison Co., Minn.

Bee-supplies Cheap! For prices write W. D. SOFER & SON, Box 565, Jackson, Mich.

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CONVENTION NOTICES.

The semi-annual meeting of the Southern Minnesota Bee-keepers' Association will be held on the first Monday in May, 1895, at La Crescent, Minn. All bee-keepers are invited.
E. C. CORNWELL, Sec., Winona, Minn.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must say you want your ad't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Old combs in frames. *Describe*, with price. W. L. COGGSHALL, West Groton, N. Y.

WANTED.—To exchange the only wax-extractor in the world that will extract all the wax from old combs rapidly by steam, also bee-smokers, for wax. C. G. FERRIS, South Columbia, Herk. Co., N. Y.

WANTED.—To exchange Universal wood-worker, one groover, one dovetailer, and one cutter-head table; also short jointer, all in good order. What have you to trade for one or all?
W. S. BELLOW, Ladora, Ia.

WANTED.—To correspond with parties wishing to sell or test my new hive. F. DANZENBAKER, 1110 New York Ave., Washington, D. C.
Reference, GLEANINGS.

WANTED.—25 to 100 hives of bees. Who can furnish them the cheapest? I will exchange, for bee-hive machinery, queens bred from a straight five-banded breeder valued at \$50, or from imported stock.
H. G. QUIRIN, Bellevue, Ohio.

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange Black Minorca eggs at 60c per 15 for a few untested queens.
H. BARBER, Adrian, Mich.

WANTED.—Bees, bee-supplies, and poultry, in exchange for strong, well-rooted basswood-trees. This is the time to transplant.
W. R. LIGHTON, 601 N. Y. Life Bldg., Omaha, Neb.

WANTED.—To exchange yellow Italian queens the coming season, also the best varieties of strawberry-plants, cheap, for foundation or offers.
MRS. OLIVER COLE, Sherburne, Chenango Co., N. Y.

WANTED.—To exchange bees, queens, and eggs (from B. P. Rocks, S. C. B. Leghorn, and Light Brahmas), for bee-supplies or offers.
CHAS. H. THIES, Steeleville, Ill.

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange Australian stamps for any other denominations. Send along from any part of the world, and I will return equivalent.
H. L. JONES, Goodna, Queensland, Australia.

WANTED.—To exchange 6 and 12 inch Root foundation-mills for wax, honey, or offers.
I. J. STRINGHAM, 105 Park Place, New York, N. Y.

WANTED.—20 lbs. of bees and 10 tested queens in exchange for Gregg raspberry-seeds.
H. H. AULTFATHER, Minerva, O.

WANTED.—To exchange Foxhound pups, peerless stock, for any thing useful. Fox terrier wanted.
S. S. MILLER, Grantville, Md.

WANTED.—To exchange raspberry and blackberry plants, \$6 per 1000, bees \$5, Japanese buckwheat, for beeswax. A. P. LAWRENCE, Hickory Corners, Mich.

WANTED.—To exchange poultry and eggs (3 best kinds) for thin foundation, sections, shipping-cases, or new smokers.
D. F. LASHIER, Hooper, Broome Co., N. Y.

WANTED.—To exchange supplies and other goods for honey. O. H. HYATT, Shenandoah, Iowa, 20tf

3=Banded ITALIAN Queens, from my own imported queens, \$1.00 each.
Max Brauer, Beeville, Bee Co., Tex.

WHY NOT

Send your orders to W. H. Laws for Italian Queens?

THE BEST IS THE CHEAPEST.

For beauty and business you can't beat them. The leading bee-keepers of the U. S. are my customers, and all praise them. I breed either the Golden or Leather-colored strains.

PRICES REDUCED

To suit the times. Fine breeders always on hand, \$2 to \$3. Untested, 75c; 3 for \$2. Tested, 1; 6 for \$5. Address

W. H. LAWS, LAVACA, ARK.

«MONEY-MAKERS»

Are a strain of business Italians that winter in the cold North, and are ready for business, with a bushel of bees, when the flowers bloom. They are gentle and industrious. Queens warranted purely in June. Each, \$1.00; six, \$5.00; doz., \$9.00. Safe arrival and satisfaction guaranteed. Never had any disease.

Address E. F. QUIGLEY, UNIONVILLE, MO.

A Bargain.

I have a complete set of the back numbers of GLEANINGS, unbound, clear up to the present, that I will sell for \$10. Regular price, bound, \$25.

MRS. A. A. RICE,
Seville, Ohio.

3 Great Potatoes. Read Your Catalogue.

That great Carman No. 1 (10 lbs. grew 24 bushels); Maule's Irish Daisy; and Everett's Onward (new); all three mailed, 50c (large, \$1). ¼ bu. each of Puritan, Rural New-Yorker No. 2, American Wonder, and Everett's Early Six Weeks, with 1 lb. your choice, \$2.00. Last four named, \$3.00 per barrel.

Smith's Stock and Seed Farm,
Padelfords, N. Y.

SPRAY • PUMPS • AND • SPRINKLERS.

A Complete Line for Large and Small Growers, at Prices Within Reach of All.



Fig. 1.
Price \$3.25.

It is becoming every year more evident that, in order to secure perfect fruit or foliage, it is absolutely essential that the trees and shrubs be sprayed with poisonous arsenites one or more times each season at just the right time in order to kill the insect pests which work so much havoc. If you would secure a crop of salable fruit, spraying is as necessary as the proper cultivation and enriching of the soil. To do this work most easily and economically you require the best tools to work with. We have carefully examined many spraying outfits, and believe the line we offer here can not be surpassed in quality, efficiency, and price.



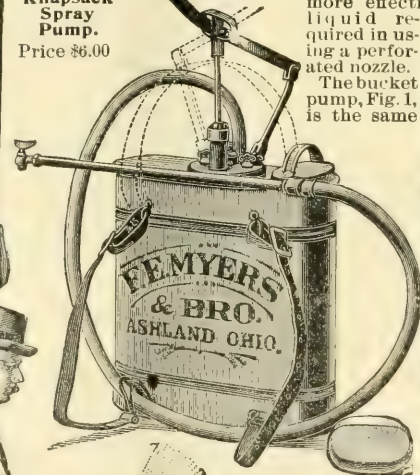
Fig. 3.
Myers nozzle.



Bordeaux Vermorel.

The Myers Bucket Brass Spray-Pump is shown in Fig. 1. It includes 4 ft. of $\frac{1}{2}$ -inch hose and Myers spray and sprinkler nozzles as shown. The Vermorel or Bordeaux nozzles may be had instead of Myers, when specified, at 25c each extra. These nozzles are shown half size in Fig. 3. The Myers is the simplest and least liable to get out of order. The aperture in the Bordeaux can be varied in size from the finest spray to a stream. The degorger in the Vermorel is very handy for clearing the spray tip of any obstruction. The Myers is regularly furnished on the bucket pump, Fig. 1; the Bordeaux on the knapsack, Fig. 2, and the Vermorel on the barrel pumps, Fig. 7, unless otherwise ordered.

Fig. 2.
Knapsack Spray Pump.
Price \$6.00



These spray nozzles throw a spray as fine as mist, so that it floats up like a cloud, settling on the foliage like dew. This is more effective, and uses less than a fourth of the liquid required in using a perforated nozzle.

The bucket pump, Fig. 1, is the same

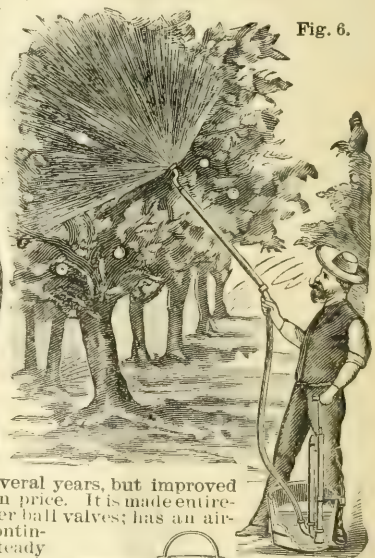


Fig. 6.

Price List of Nozzles.

Myers spray tip, 35c; sprinkler 35c.
Male end or hose connection, 25c.
8-foot pipe extension, 35c.
 $\frac{1}{2}$ -inch hose, 10c per foot.
Bordeaux nozzle, 60c.
Vermorel nozzle, 60c.



Fig. 5

as we have sold for several years, but improved in finish, and reduced in price. It is made entirely of brass, with rubber ball valves; has an air-chamber making a continuous spray; and a steady pressure of 50 lbs can easily be maintained. A fine jet is discharged from the bottom to keep the solution thoroughly mixed. By unscrewing the nozzle you can throw a stream, and thus use the pump for washing windows, bugies, etc. Fig. 6 shows the manner of operating the pump with pipe extension, which is necessary to reach all parts of the tree from the ground.

Knapsack Spray-Pump. This is shown in Fig. 2. The can is of galvanized iron, and holds 5 gallons. The pump is the same kind as the bucket pump, but made shorter. It may be entirely removed from the can, and used as a bucket pump if desired. It is the only knapsack having an agitator to keep the solution stirred. The lever handle may be changed to use

with either hand, and one of the straps having a snap may be passed across the top, and hooked, forming a bail to carry the can by. As regularly sent out, it includes Bordeaux nozzle on 2 ft. of pipe extension and 5 feet of $\frac{1}{2}$ -in. hose; can be furnished with copper tank at \$3.60 extra. Vermorel nozzle substituted at same price, if so ordered.



Fig. 4.
Fountain Sprayer.
Price \$3.25.

Fountain Sprayer. Fig. 4 shows this valuable instrument, and its manner of use is shown in Fig. 5. It is the same in principle as the Lenox sprayer, on this page, but is made neater and more substantial. The most convenient implement for potato vines and small shrubs. Price \$3.25. Extra tube bulb and rose furnished for \$1.20.

Myers Barrel Spray Pump.

Where you have a larger amount of spraying to do, you can accomplish it more easily with an outfit of this kind. It has our patent submerged cylinder, is double-acting, has patent expansion rubber bucket, has a large air-chamber to cushion the spray, is provided with TWO DISCHARGE PORTS, one or both of which can be used for spraying. It has steel pins, brass plunger cylinder, and brass-lined lower cylinder, good leverage, is very powerful, and easy to operate, will throw a spray as fine as mist over any ordinary fruit-tree, and will throw a solid stream 60 feet from the point of the nozzle.

This can be mounted either on the side or end of a common barrel. The barrel may be mounted on wheels; or, if you have a horse to spare, it can be drawn around under the trees in a wagon or on a stoneboat. This outfit includes vermored nozzle, the same as the bucket pump, and the pipe extension can also be used, if needed, for high trees. We can furnish the outfit, as shown, without the barrel, consisting of pump with three feet of suction pipe, strainer, and agitator, 5 feet of rubber hose and vermored nozzle, with extra tip, for \$7.00; or the same with two 5-foot lengths of hose and two nozzles, for \$8.00; 8-foot extension, at 50 cts. extra.

We are prepared to furnish the Myers Knapsack Sprayer, with copper tank, complete, for \$9.60; and the Myers Hydraulic Spray-Pump, large enough for the largest growers, for \$22.00. Our space is too limited on this sheet to do more than mention these two items. If any are interested we will gladly mail circular with full description and illustration on application. This circular contains two pages telling what mixtures to use for different crops, and when to spray. One of these circulars is included with all the Myers pumps we furnish. It contains fuller descriptions of all the foregoing spray pumps.

Smith's Novelty Force-Pump.

sold for many years. Four nozzles are included with each pump as shown. No. 1 for upward stream, 2, for horizontal stream for washing buggies, windows, etc.; 3, for watering and spraying plants and flowers, and 4 for spraying trees. This is a strong pump, made of tin, with wood plunger, and will throw a stream 30 to 40 feet high. Price \$1.00; 12 for \$10.00; 24, \$18.00; 36, \$25.00.

Common-Sense Spray Pump.

working. The piston, or plunger, is worked with a lever handle, giving greater force for the same power exerted. The plunger-tube is shorter, and larger in diameter, than the ordinary pump. If the water comes over the top it spills right into the pail again.

It has an air-chamber, with valve, giving a continuous stream or spray. It has a short rubber hose to give direction to the stream or spray, without moving the pump. It has also an adjustable nozzle for stream or spray. We are able to offer them for only 60c each, or \$1.00 postpaid. In quantities the price will be \$6.00 per doz.; 3 doz. for \$16.00. Larger quantities quoted on application.

The Lenox Sprayer.

In Fig. 11 we show one of the most convenient implements we know of for applying poisons to potato-vines and other small plants and shrubs. With this the work can be done with greater ease and speed than you would think possible. You can spray as fast as you walk. No waste, because by releasing the pressure of the thumb the spray stops instantly till you direct it toward the next vine. Price of Lenox Sprayer, complete, with tank to hold 22 quarts, \$3.00. The sprinkler rose with bulb and hose, no tank, \$1.20. Post. 15c.

The Lenox Atomizer.

In Figs. 12 and 13 we show the Lenox Atomizer, a very handy implement for various uses. For sprinkling clothes, or watering plants in the window, you use pure water.

For applying poisons, you use any of the solutions of London purple, Paris green, hellebore, pyrethrum, according to the insects to be banished. For convenience you want an extra rubber ball for the poisons. It uses the liquids with such economy that a pint bowl of solution may be made to go over a very large surface. It is recommended for bugs and insects on carpets, furs, or clothes. For this purpose a carbolic acid solution is used. Price 35c each; post. 10c. Extra rubber balls, 15c.

PRICE
\$7.00.

With 2
Hose,
\$8.00.
Fig. 7.



PRICE, \$1.00.
Post. 50 cts.

Figs.
8 & 9.



Lenox Sprayer, \$3.00,
without tank, \$2.10.
Fig. 11



Fig.
12.

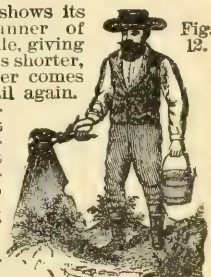


Fig.
13.
35 cts



The A. I. Root Co., Medina, O.

Advertising

type, and have thus had an opportunity to study the effect of different combinations of type in displaying advertisements. If an advertisement is sent to the REVIEW I will do my best to set it up in an effective manner. If desired, I will also compose the advertisement, the advertiser sending me his catalog, or, if he has none, giving me the strong points to be made in favor of his business. I also offer my services to those who do not advertise in the REVIEW. I have a good assortment of type, borders, ornaments, etc., and shall be glad to submit proof of my efforts in composing and displaying advertisements. Send me your circular, and I will send proof of an ad., and put a price upon the work if it should be accepted. As a specimen of my work in this line, see the ad. of W. W. Cary, in this issue of GLEANINGS.

W. Z. HUTCHINSON, Flint, Mich.

Established in 1861.

Please Cut Out
This whole Advt.
sign, and Mail.

Please send me the American Bee Journal each week for Three Months. At the end of that time I will remit \$1.00 for 1 year's subscription, or 25c. in case I decide to discontinue.

To the Publishers of American Bee Journal,
56 Fifth Avenue, CHICAGO, ILL.

Name _____

P. O. _____

State _____

Sample Copy Free!

NEW SUBSCRIBERS are given a free copy of Newman's "Bees and Honey"—160-page book—upon receipt of \$1.00 for a year's subscription to the Am. Bee Journal, or this book will be sent at the end of the 3 months, as per above offer. You ought to have the weekly Am. Bee Journal, even if you have GLEANINGS. For \$1.75 we will send you the Bee Journal and GLEANINGS for a year, besides a copy of the "Bees and Honey." Address your order as above, or for sample copy.

E. KRETCHMER, RED OAK, IOWA,

* * *

4-8

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I told you so.

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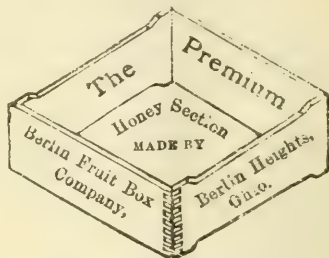
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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

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APR. 1, 1895.

No. 7.

STRAY STRAWS

FROM DR. C. C. MILLER.

ILLINOIS STATE FAIR offers bee-keepers \$255, in premiums of \$2 to \$20 each.

GUENTHER says Italian queens don't live as long as black ones.—*Bienen-Vater*.

THE FIRST PAGE of the *American Bee Journal* for March 7 is well edited. Five editors appear on it.

PROPOLIS, warmed and applied as a plaster to corns, is said to be a cure, in *Schweizerische Bienenzeitung*.

BEES FLEW a little, March 18, with the thermometer at 34°, and flew nicely at 44°; but the sun shown brightly, and the air was still.

IN ITALY an enemy of the wax-worm has been discovered—a fly that lays its egg in the worm, from which grows a larva $\frac{1}{2}$ inch long that kills the worm.

LE PROGRES APICOLE occupies a supplement of 15 pages telling about a four-days' bee-keepers' convention and exposition, with 184 prizes, commencing Aug. 31 at Mons, Belgium.

IN BUYING SEEDS of honey-plants, look out you don't get a start of bad weeds. A lot of sweet-clover seed that I bought gave me a start of three bad weeds I had not known before.

"How OLD may brood-combs be before changing them?" is a query in *A. B. J.* No one of the repliers thinks of changing them before 10 years, and the large majority never change on account of old age.

ACTINIDIA POLYGAMA is mentioned as a new honey-plant in Germany—a twining plant, perfectly hardy, bearing long clusters of green fruit that is of the size of gooseberries; sweet, and with the odor of pineapples.

A BEE'S EGG, according to some authorities, weighs .00013 of a gram; according to others, .00021 of a gram. Can Hasty or some one else tell us which is correct? [Hens' eggs vary in size; and, if my eyes have not deceived me,

queens' eggs. That being the case, both figures may be right.—Ed.]

BLACK BEES seem to be preferred to Italians in England, but in Australia not. In the Question-box of the *Australian Bee Bulletin*, all the repliers strongly preferred Italians except one man, and he had had only one colony of Italians.

E. E. HASTY, in *Review*, and "Gleaner," in *American Bee Journal*, seem to spend a large part of their time nosing around in the pages of GLEANINGS after choice bits. All right, brethren, there's nothing wrong in your brouseing where you find the best picking.

NO WONDER beeswax was in demand in the Middle Ages. I read in *Elsass-Lothringischer Bienen-Zuechter* of the immense number of wax candles burned in the churches. In one of them, 16 candles, each weighing 30 pounds, were kept burning day and night.

HASTY SAYS, in *Review*, that "putting foot-notes of the GLEANINGS variety on the Straws" gives vivacity to the first page. So say I. They're more interesting reading to me than the Straws themselves. [Don't believe it; but I'll stick 'em on so as to have my say.—Ed.]

"WE HAVE ALWAYS found bees build burr-combs when starters only are put in the upper story."—*Australian Bee Bulletin*. Never thought of it before; but it's reasonable to suppose burr-combs will be worse with small starters, because the bees are slower about going up.

GIANT BEES of India, or *Apis dorsata*, are now advertised, and I'm afraid there is something wrong. The advertiser says one of the drones put in a cage with a black or Italian queen will fertilize her at once, "and will fertilize as many as four queens before he stops"! [See Editorials.—Ed.]

CHEMISTS SAY there is more "sweetenin" in a dollar's worth of white than in a dollar's worth of brown sugar. I never disputed it, but I'd just like to know how it can be. Take a barrel of brown sugar and change it to white, and then it costs more, doesn't it? But have you added any sweetness to it?

"CLUMSY" or no clumsy, if you can make on rolls foundation like the Given, that the bees will like as well as that made with the press, I want to try it. I want foundation, not for its beauty, but for the beauty of the finished product. [We can make the article; and if the bees or their owners can tell it from the pressed wax, they are smart ones.—Ed.]

THE *Bienen-Vater* is an excellent German bee-journal, published at Vienna. You can subscribe for it at a dollar a year, or you can join the bee-keepers' society, paying 50 cents a year, and get the journal for nothing. Is it any wonder the society has a large membership? I tell you, those Germans can give us points on bee-keepers' societies.

A VENERABLE TRADITION has come down to us, that allowing bees to get started storing in the brood-nest seriously interferes with their storing in supers. I've bowed to that idol long enough, and now stand up to say I don't believe there's a word of truth in it. So there, now! [I am half inclined to think the doctor is right. If there is a supporter of that "Venerable Tradition," let him speak out.—Ed.]

"A NICE JOKE" is what Mr. Cowan calls that Straw on p. 123 about British honey production. That Medina printer wouldn't think it any joke if I could get hold of him. Only I'm afraid the mistake was mine instead of his. You see, I gave 5250 lbs. as the possible production annually, when I meant tons. But Mr. Cowan thinks 10,000 tons would be nearer the mark. [Your treat, doctor.—Ed.]

PROPOLIS, says Geo. W. Stephens, in *A. B. J.*, can be cleaned off the hands with soap and water alone. "Use plenty of soap and not much water; rub the hands together in the lather until the propolis is dissolved, then wash in the water. If any propolis yet remains, lather and wash again." [Grease the fingers with vaseline before working with the hives, and the propolis won't get on the fingers much if any.—Ed.]

LA GRIPPE, says Dr. Peiro, in *A. B. J.*, can generally be shaken off if taken at first. "Absolute quiet in a warm bed, not a thing to eat for 24 hours, and only hot buttermilk to drink—all you want of it. After that time, toast, with the yolk of a soft-boiled egg three times a day is permissible. In a few days you will be quite able to resume your regular work and diet." [Dr. P. is about right. I have been testing that sort of advice, without the buttermilk, and it worked tiptop. We don't have buttermilk at our house.—Ed.]

WHAT'S THE RIGHT ANSWER to R. C. Aikin's demand, p. 205, for 25 and 50 lb. cans for extracted honey instead of 60 lbs.? [Yes; but we can't make the large manufacturers change. The 60-lb. cans are made to hold a great variety of liquids, among which kerosene and lubricating oils are the most prominent. These

goods are sold by the gallon; and the cans hold, even measure, five gallons. A four-gallon can would be an odd-size; and as the honey interests are insignificant compared with the oil-trade, it is evident that the smaller size, holding 50 lbs., would cost as much as or more than the 60-lb. size. The square cans are cheap because the oil and syrup business makes them so, and we must take the regular size or pay more.—Ed.]

[As this item, although by another writer, properly belongs to this department, I put it here at the end.—Ed.]

Dr. Miller's criticism in March 15th GLEANINGS, in *Stray Straws*, is a little misleading when he compares the capacity of my hive with 9 frames with that of the Dovetailed hive with 8. My statement, that I favored the eight-frame hive with 9 frames, applies as well to the eight-frame Dovetailed hive as to mine or any other of same width. Comparing them both as an eight-frame hive will be fair. And, again, if Dr. Miller will think just a moment he will be able to see (without getting off the fence) that adding an extra frame does not increase the capacity of the hive except in one respect. It gives more comb surface, but makes the combs thinner and only increases the capacity for brood, and actually diminishes the capacity of the hive in other respects. It diminishes the room for bees by just the space occupied by the extra comb. It diminishes the holding capacity for stores, as it adds an extra empty bee-space.

Mr. Hatch has made the same criticism on p. 225 of the same issue. My brood-frame has a cross-bar in the middle, which has been overlooked in the estimate of the comb-space in it. This was omitted in my article also.

H. R. BOARDMAN.

East Townsend, O., Mar. 18.

[There! you have struck the key to the situation exactly. I thought I was right, but couldn't prove it quite as well as you have done.—Ed.]



THE OLD-STRAW BEE-HIVE.

THE BEST FORM FOR A HIVE.

By H. R. Boardman.

This has always seemed to me to be a model of perfection not surpassed by any other hive in use to-day, if man's convenience is eliminated from the question. This strange, ancient hive, was hardly the result of accident, but was, I think, the result of careful study of the requirements of the bees by the pioneer bee-keeper, who took the dimensions of the swarm, as it were, for an economical covering for their protection. It is most perfectly adapted by its

shape to fit and protect a swarm of any size, large or small, and that, too, without the use of division-boards.

There are two important features to be secured in the construction of a bee-hive—the requirements of the bees and the convenience of the bee-keeper. It becomes important to decide how far we can afford to sacrifice the one to secure the other. A plain box or chamber, affording a cavity of sufficient size, is all that is required by the bees for a domicile. They will store as much honey in a log gum or a straw skep as in a hive of modern pattern. Even movable frames, that have become an indispensable feature of modern bee-keeping, are not appreciated by the bees. I have more than suspected that a plain box hive, of the old type, with the combs built securely to the sides and top all around, furnishes better conditions for wintering than the modern movable-frame hive.

In buying bees to transfer, I sometimes used to get an old neglected movable-frame hive. The frames would be irregularly spaced, and the combs built crosswise in every conceivable shape. I soon learned that they were not as valuable for my use as the plain box hives. I have never been able to see how these improvements furnished any of the requirements of the bees, or conveniences to the bee-keeper. There are a great many of these primitive bee-keepers all over the country, who will have from one to half a dozen colonies of bees, kept in this way. They buy improved hives and fixtures, but never expect to look into a hive after the bees are put in. It pains me to see my poor neighbors pay their money out for something that will do them no good, and I am inclined to recommend only box hives for box-hive bee-keepers.

THE BEST FORM FOR A HIVE.

I am aware that bees adjust themselves to a very wide range of circumstances, and even to serious inconvenience in the hives they sometimes occupy, without seeming to materially affect the results. I am sure that this furnishes no proof that there is not an economical form for a hive, that will give better results than any other form. I am aware that there is no such fixed form generally recognized among bee-keepers; but the size and shape of hives, in use varies through a very wide range, and are, I am well satisfied, many of them at least, the result of accident rather than the careful consideration of the requirements of the bees or the convenience of the bee-keeper. I have never been able to find any sensible reason why a hive in cubical form, with a square frame, was not the most perfect form. It furnishes, more nearly than any other, the natural requirements for a brood-chamber in permitting a round, compact brood-nest, and at the same time it furnishes the most economical form for the convenience of the bee-keeper.

Such a hive I have used for many years. Before the advent of the one-pound section I used a deep frame, but it was not just square, but deeper than wide. This gave good results; but I wished to use wide frames in the regular hive-body, for holding sections. Accordingly I made a slight change in the dimensions of the hive, which enable me to use my present square frame. The hive in most general use, and the most popular, perhaps, of all, is the long shallow hive of the old Langstroth pattern, with its improvements and modifications. I wish to compare these two forms of hives in some of their important features, and for convenience will call them the square hive and long hive.

SOME OF THE ADVANTAGES OF A SQUARE HIVE.

First, in the construction it is the most economical form, giving greater holding capacity than any other. Any one who can make figures can convince himself of this if he is interested enough to make a careful comparison of the square and long hive. It affords the same economy in construction, and it also gives less surface exposure to the cold of winter and the heat of summer, which is an item of more importance than might at first appear.

When I took up my pencil and made a careful computation of the comb capacity of the square and long frame, I was not a little surprised to discover that the square frame ($12\frac{3}{4} \times 12\frac{3}{4}$) actually contained the most comb space. The compact form of the square hive, giving the least possible surface exposure, and at the same time giving a brood-nest of the best possible form to resist cold, contributes largely to the best results in wintering. It has a reputation for good wintering qualities that few will think of questioning. The same features that make it favorable for wintering are also favorable for spring management. There is no place where these favorable conditions are more appreciated by the bee-keeper than in the spring.

There is not much in the claim that the long shallow frame has a decided advantage in manipulating; as the square hive has, if conveniently constructed, a side opening that makes the frames easy of access. There is, though, one advantage in a shallow frame—a prominent one—which I will not fail to recognize. It spaces more uniformly at the bottom of the frames. If fixed frames are used, of course this advantage all disappears.

There has been some discussion in the past over the height of the hive for the best convenience for yard work, and I regard it a matter of some importance among other features of the hive. The square hive furnishes the best height for convenient work possible, in sitting at a single hive or standing when tiered two stories.

Among the many who have discovered that the long hive is not a model of perfection is

John Craycraft, in *GLEANINGS*, p. 47. He gives some very sensible arguments, showing the advantages of his square hive over the long hive, although his is not a square frame. This, to my mind, eliminates the most objectionable feature. His experience with both styles of hives entitles his views to careful consideration. It has often occurred to me that I should want to use the frames as he arranged to use them, the short way of the hive, if I were using the long hives. Nor would this make a hive that I could be satisfied with by any means.

HOW THE SQUARE HIVE OPERATES IN WINTER.

At the beginning of cold weather the brood will all be hatched. This will leave the lower part of the combs empty, upon which the bees will be clustered. The stores will all be above the bees, in the most favorable position to be protected and preserved by the heat ascending from the cluster. As the winter advances, the consumption of stores enlarges the brood-nest of empty comb, and the cluster advance slowly upon the stores above them; and as long as any stores are left they are in an available position, and preserved in good condition for use. This is important. Stores of honey exposed for any considerable time to the cold become candied or grained, and are seriously impaired, and sometimes they become utterly worthless, and will be dug out of the comb, and carried out of the hives when warm weather comes. At the approach of spring, the cluster will have reached the top of the combs, where brood-rearing will begin in the warmest and most favorable part of the hive.

HOW THE LONG HIVE OPERATES IN WINTER.

Long before winter is over, the stores will be exhausted above the cluster to the top of the frames. If the cluster was located in the center of the hive, they will now have the stores divided into two lots, one in either end of the hive. One lot must now be abandoned while they advance upon the other. When these are consumed they are hopelessly cut off and separated from the stores in the other end by the empty comb between, and will perish unless a fortunate warm spell comes to their relief. But suppose the cluster is located at one end of the hive, at the beginning of winter. The stores will all or nearly all be at one side, and exposed to nearly as much cold as if no bees were in the hive at all. If the cold is severe and continuous throughout the winter, how could any thoughtful bee-keeper hope or expect the dormant cluster of bees to advance upon this frozen and candied mass of stores, and be able to appropriate them for food, with much chance of survival?

The large amount of surface exposure of the long hive makes it unfavorable for wintering without protection. This fact seems to have been early recognized by its advocates, and chaff packing as a winter protection came to the rescue. By this improvement the hive

that was already clumsy and awkward to handle became practically an immovable fixture in the bee-yard, and manipulation of such hives was not to be thought of.

I think the chaff hive has hardly been regarded with favor by the majority of large honey-producers, even by those who practice outdoor wintering. The manipulation of hives is too important a feature to be sacrificed for the advantages thus gained.

East Townsend, Ohio.

E. FRANCE'S QUADRUPE LANGSTROTH HIVE.

HOW USED AND MADE BY HIMSELF.

By E. France.

First, we will say our lumber is dressed on both sides, and is $\frac{3}{8}$ inch thick. We want a pair of good match planes that will make a good tight job. For an eight-frame hive, match boards together for a bottom 30 inches wide by $42\frac{3}{4}$ inches long. We now want a division-board 30 inches long, $9\frac{1}{4}$ inches wide. Make the division-boards double thickness; nail two pieces of lumber together flatwise. Now rabbet out of the top edge of the division-board $\frac{1}{2}$ inch out of the thickness of the board, and $\frac{5}{8}$ inch down toward the bottom. Cut a rabbet on both sides of the division-board. Those rabbets are to hold up one end of the frames. Now put the division-board across the bottom-board, exactly in the center, and nail it fast, driving the nail through the bottom-board into the division-board.

Now make two short division-boards, double thickness, to go lengthwise of the bottom, dividing the hive into four equal parts. Nail them in, and we are ready for the sides, which should be wide enough to come even with the top of the division-boards and down to the bottom of the bottom-board ($10\frac{1}{2}$ inches wide); now two boards the same width to go across the ends; then we want some one-inch hoop-iron. Cut off a piece 30 inches long. Round off the two upper corners, then drive the iron into the division-board between the two thicknesses. Drive it in half an inch, leaving half an inch above the division-board. Now cut two pieces of hoop-iron to go into the short divisions, the same length as the division-boards. This iron is for a safeguard to keep the bees from passing from one colony to another over the divisions, in case the honey-board should be warped enough to let bees pass over.

We want quite a lot of $1\frac{1}{2}$ -inch strips, same thickness as the hive lumber. Place a $1\frac{1}{2}$ -inch strip around the top of the hive, $\frac{1}{2}$ inch down from the top. This is for the top chamber to rest on.

If you now look at the pictures you should get a good idea of the hive. The entrance is put at the corner furthest from the center of

the hive. The bees in winter cluster about the center of the hive, away from the entrance. The open hive shows the large entrance open for summer. The closed hive shows the large entrances, $1\frac{1}{2}$ in., closed by the button, down to the small hole, $\frac{1}{2}$ inch for winter. The closed hive also shows the ten-inch belt, as we have them in summer, when the third stories are on. The belt is in two parts, hooped together. When we open the hive, one-half of the cover is turned over on to the other half. We can then work two colonies, can take off one-half of the belt, and all the loose stories, if we wish. If we want to get into the lower story, or brood-nest, when we are done with

ting in the half-inch lining, take the square block (that you see upon the open hive), four inches square, $1\frac{1}{2}$ inches thick, and put it in between the outside of the hive and the half-inch lining. Make the hole match with the hole through the hive; nail through the half-inch lining into the block; pack chaff around it. For those bottom entrances, cut out half of the thickness of the bottom part of the cushion frame, opposite the holes in the side of the hive; also see that there is a passage through the half-inch lining. Those loose parts for second and third stories are made with a cushion in one end and one side. Make them the right size to fit one of the quarter-



FRANCE'S QUADRUPLE LANGSTROTH HIVE, CLOSED.*

the two colonies, we can put on the loose stories and the half belt, then shut down the cover; then if we want to work the other two colonies, just turn over the other half of the cover or chamber, and work the other two colonies. In winter we take off the third stories and the belts, and pack them away in the storehouse.

There is a two-inch lining inside the hive. All around the outside we use the $1\frac{1}{2}$ -inch strips to make a frame; nail the frame to the hive, then side up inside the hive with $\frac{1}{2}$ -inch lumber; fill the vacant space with chaff, well packed in. When lining up the end chaff-box, leave the half-inch lining low enough to form a rabbet to rest the end of the frames on, as shown in the cut. There must be a bee-passage through the chaff lining. Bore a hole through the outside of the hive; then when you are put-

divisions of the main hive. Rabbet out a frame-rest from the single-board end. The rabbet at the cushioned end is made by leaving the half-inch lining down $\frac{3}{8}$ of an inch. Make these upper stories $9\frac{1}{2}$ deep. I use a solid board (honey-board) over these hives, made to fit one division or quarter-section; cleat at the ends to keep them from warping. Honey-board is shown in the cut, up in the turned-back cover, with two holes through it, holes covered with wire screen. The holes are used for feeders. When I have to feed I set one of my pepper-box feeders over each hole.

Now for the roof, or top chamber. The cut shows how they are made. We want them

*The camera has distorted the true rectilinear lines a little in the hive and building in the background, for which allowance should be made.—ED.

deep enough to cover one set of upper stories, and leave room above the honey-boards for some straw packing for winter. The gable-end boards in my hives are $17\frac{1}{2}$ wide at the ridge, below the roof-boards, and $13\frac{1}{2}$ in. under the eaves. The roof is hinged together with three heavy 5-inch strap hinges. My frames are L. size, $17\frac{3}{8} \times 9\frac{1}{8}$.

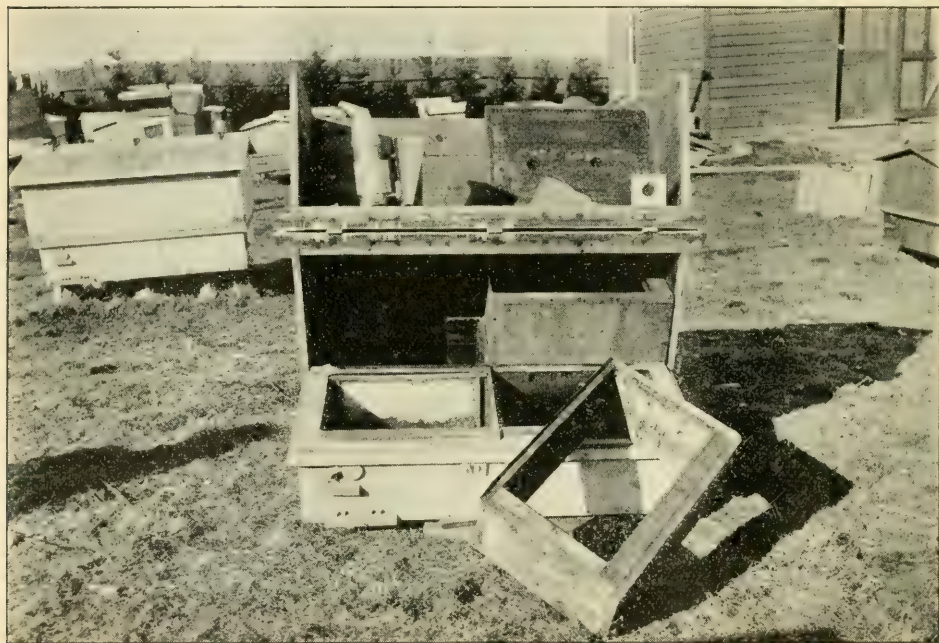
Now I believe the hive is made. You can see very nearly what kind of a stand I set it on—6 stakes driven into the ground, 2 feet four inches out of the ground; 3 boards, 4 inches wide, nailed on top of the stakes crosswise of the hive, all leveled with a spirit-level.

My bees are wintering finely in those hives this winter—140 colonies; not one yet dead. All had a good fly Feb. 27.

an hour or two, then smoke them a little and put in the upper set of frames fixed to suit you; or if the swarm is small, drive the bees down into the lower story, and put the honey-board on that.

I find this hive safe to winter bees in. Wind doesn't blow it over; farm stock don't push them over.

One thing I forgot to mention. That single story, shown with the open hive, shows a strip of galvanized iron nailed on the single side, raised up $\frac{1}{2}$ inch above the wood. That should go around the single end also. It is put on as a safeguard to prevent the bees from passing over from one colony to another. We cut a strip $1\frac{1}{2}$ inches wide, and long enough to go around one side and one end; nailed on the



FRANCE'S QUADRUPLE HIVE OPENED AND DISSECTED.

Some one says, "How in the world can you hive a swarm in that thing?" Easily. First, hive your swarm in a common box hive; then turn up one half of the roof over on to the other half. Put your frames into the lower story containing combs, or foundation or starters; set on the second story empty, no frames; have the honey-board ready to put on. Now get your box hive that has your swarm in it; bring it to your prepared quadruple hive; hold your box hive over the empty second story of the frame hive—box hive open end, of course. Now give the box hive a good chug down on the frame hive, and your bees are all in. Put on the honey-board quick, then let them alone for

honey-board; and other single stories fit right in there. The iron is not in the way at all.

Platteville, Wis.

[It may be a little difficult to understand the exact construction of the quadruple hive from the description; but if you will examine carefully the engravings I think it will be plain. It will be seen that these quadruple hives are large, and it would almost appear that they are clumsy, and would require clumsy and difficult manipulation. But friend France has got the handling of them down to a science. When I saw him work them he did nothing with them except what any frail woman could have done. Indeed, although he is over 70 years old he handles one yard entirely alone, taking large crops of honey. My purpose in saying this of the quadruple hive as used by Mr. France is

not to boom it nor to say that everybody should use it, but only to show that it is not such an awkward hive as it appears to be.—Ed.]

THE MADISON CONVENTION.

REPORT OF THE ELEVENTH ANNUAL CONVENTION OF THE WISCONSIN BEE-KEEPERS' ASSOCIATION, HELD AT MADISON, FEB. 6 AND 7, 1895.

By H. Lathrop.

It was with some misgivings that the officers of our association wended their way to the State Capitol to our regular annual meeting. For some years past the attendance had been getting smaller; and just at convention time this year there occurred one of the most severe storms of the winter, which would discourage some from coming. But the outcome was the reverse of what we feared. There was a good representation of the old standbys, and a number of bright young men who attended for the first time, and who will doubtless be among the future successful bee-keepers of our State. Much of the discussion related to questions that have been discussed many times in conventions before, and which might seem to have been worn out; but we must not forget that much of our work is for the benefit of the younger and inexperienced, to whom these questions are important.

Some of the members of the Southwestern Wisconsin Association were with us, of whom N. E. France, the president of that society, was elected to an office in ours. Messrs. Van Allen and Williams, two enterprising young men from Boscobel, Wis., had on exhibition a six-frame automatic honey-extractor that seemed to please every one who examined it. The following is taken from brief notes of the sessions:

The convention was called to order by President Frank Wilcox, at 1:30 P.M., in a room of the State-house. The minutes of the last meeting were read and approved.

N. E. France, of Platteville, stated that he had been sent as a special delegate of the Southwestern Wisconsin Association, for the purpose of working with us for the passage of a foul-brood bill, and asked the privilege of having the question inserted in the program. Pres. Wilcox replied that it is proper to introduce any question by simply writing it on a slip of paper and handing it to the chairman.

Mr. Tawle called for the report of the committee appointed last year to present the request of the association for lower freight rates on extracted honey. H. Lathrop reported that the request had been presented in due form to the chairman of the Western Classification Committee, Mr. Ripley, who had promised to bring it before the meeting of the committee in November; but a list of tariff changes made in

that meeting, which had since been sent out, did not contain any reference to extracted honey.

A letter from the commission house of S. T. Fish & Co., Chicago, was read, in which they answered several questions on the program, as follows:

Glass fronts to shipping-cases should not be dispensed with. We would not allow any one to ship up comb honey unless it had glass fronts, and we think that any one who wants to change the present style of case is making a mistake. The railroad companies request that the glass be covered; but in every instance where this has been done, honey has arrived in bad order, as the freight-handlers are not aware of the contents of the cases; while if the cases have glass fronts it is handled with care.

They also spoke very decidedly against dispensing with the use of separators. They do not think statistics of the bee-keeping industry is of any benefit. They preferred extracted honey in barrels, half-barrels, and kegs, or in 60-lb. cans; but they could not pay any more for it when in cans.

Mr. Van Allen said it was of great benefit to the retailer to have glass fronts in shipping-crates. H. Lathrop described how he protected the fronts of single-tier crates by tacking a short piece of lath across each end, and then tacking a piece the full length of the crate on to these short pieces. This protected the glass, and conformed with the requirements of the railroad companies, and did not hide the contents of the crate. When the honey arrived in store these strips can be pulled off.

In regard to the use of separators the convention was about evenly divided for and against their use. It was generally considered safest for all, except the expert and careful bee-keeper, to use them. The question of supers was taken up, and on this there was also a division. Some declared they had the best success with deep wide frames, and others used the T super, or topless wide frame. It is evident that we have not yet found a surplus arrangement of such marked superiority that it will supersede all others.

It was voted to make the presidents of other bee-keepers' associations, attending our convention, honorary members. This admitted N. E. France, president of the Southwestern Wisconsin Bee-keepers' Association. At this juncture Mr. France announced that the next convention of their association would be held the first week in October, at the house of E. France, in Platteville, to which he invited all.

The question of foul-brood legislation was taken up. Mr. France spoke of the great danger to bee-keepers from foul brood, and read the draft of a proposed foul-brood bill, which was similar to the Canada law. A committee was appointed to present the bill to the legislature, and work for its passage.

The question, "Does it pay to feed back in order to finish partly filled sections?" was decided by vote in the negative; though some maintained it could be done with profit if properly managed. It was the general opinion of the members, that extracted honey should be thoroughly ripened, and on the hive was the proper place to do it.

Mr. Wilcox stated that, in melting up granulated honey, the water should not be allowed to get hotter than 140°, lest it should injure the delicate flavor of the honey.

MORNING SESSION, FEB. 7.

The first item of business was a resolution offered by Mr. Winter, extending the sympathy of the association to the bereaved family of our deceased brother, S. I. Freeborn, of Richland Center. The resolution was adopted, and a copy ordered to be sent to the family. It was the sickness and death of Mr. Freeborn that prevented the attendance of our former president, C. A. Hatch; if he had been present we expected something from him on the important question of brood-chamber capacity. The question was not discussed to any extent, and nothing new presented.

A letter from an absent member, Gustav Gross, of Milford, was read, in which he called attention to the fact that sweet clover was included in the list of noxious weeds. He thought we ought to do something to have the law changed. It was decided that, as we were asking for legislation on foul brood, it would not be best to do any thing about it now. In some places it would not do well, and in a few cases only the weed commissioners had condemned it. Mr. Hoffman said it was not a very good honey-plant in his location. Mr. France thought we had better sow alsike clover.

On the question, "What can we do to improve our association?" one suggested that each member bring one new one; another suggested that we get the ladies to attend. This was warmly seconded. Take notice, sisters, we expect you next year. Several members reported that their wives had intended to come along, but were prevented by sickness among the children at home.

The following were elected officers for the ensuing year:

President, Frank Wilcox, of Mauston; Recording Sec., H. Lathrop, Browntown; Corresponding Sec. and Treas., N. E. France, Platteville.

A paper sent in by W. H. Putnam, of River Falls, entitled, "Honey; how it should be Prepared for Market," was considered very good, and we therefore give it here in full.

Browntown, Wis., Mar. 5.

HONEY; HOW IT SHOULD BE PREPARED FOR MARKET.

I shall confine my remarks to the production and preparation of comb honey for the market. I do not wish or expect to impart much information to my fellow-members of this association, as most of

them, at least, are experts in this line. The great body of bee-keepers, however, are not members of this or any other association, and they are the people who need to improve in the preparation of their honey for the market. My ideal of a package of comb honey, if a 12-pound case, should weigh 11 pounds net; if a 24-pound case, it should weigh 22 lbs. net. The comb of each section should be confined within the wood of the section, so that, if a straight edge were drawn across its face, resting on the edge of the rim, it would not touch the comb. If honey is produced in this shape, each individual section can be removed from the shipping-case without disturbing the others. Precaution should also be taken against leaking. These are qualifications which the market demands, and the successful business man will cater to the trade.

People in other lines do put up their goods to suit the purchaser, and we must do the same if we would make money. For instance, a few years ago it became fashionable to color butter. The conservative people argued against it, and there was no end of clack and clamor against coloring butter. One of the most successful dairymen in my State (Wisconsin) favored the coloring of butter, because he said his customers demanded it; "and," he added, "if my customers send in an order for butter colored blue, the next shipment will be colored blue."

I make this digression to try to impress upon bee-keepers that the end of all our efforts is to make bee-keeping profitable; and if we would succeed we must cater to the trade. I had occasion recently to criticize a large producer of comb honey. That man raised nearly 4000 lbs. of comb honey in the poor year of 1894. I bought the whole amount at the price he asked, 10 cents a pound. I had difficulty in disposing of that honey because the crates were overweight, and the sections were not straight. You could not get one out without tearing the crate to pieces. When I had sold a customer one lot I could not sell him another. I criticized my friend, the producer, stating the reason why the trade wanted the scant sections, and got the following reply: "I do not care to put up honey for the dealer to beat the consumer on if I can help it." A long argument might be had on this point; but to cut it short, and state my view of the point, I will say, "Don't bite off your own nose to spite some one else;" dealers don't have to buy any man's honey unless it suits them, and it will suit them if they can make money on it. *Moral: Cater to the trade.*

Then I may briefly state my ideal crate of comb honey to have four necessary requisites:

1. It must be scant weight.
2. Combs must be straight.
3. They must not leak.
4. The 1-lb. is the standard.

How shall we obtain these requisites? If we would compete with Bro. Wilcox and Bro. France at the State fair next fall, we must lay the foundation now. If we would compete in the markets of the world we must make preparation at home long before the bees begin to swarm.

To accomplish these points we must adopt a section that, when filled full, will weigh about a pound. I consider the 4½x4½x1½ the proper size for general use with separators, and I do advise the use of separators by the general public. The members of this association do not need to use separators; they are skilled in their profession; they look to all the points; they keep their hives level; they keep their bees strong, so that, when they go into the surplus case, they fill it, and straight combs come naturally. For such bee-keepers I would advocate the 4½x4½x7 to the foot, and a full sheet of comb foundation. The average bee-keeper uses about 1 lb. of comb foundation for a bunch of 500 sections; his bees take care of themselves; some are strong, but most of them are weak; but a few bees go into the super at first; they cluster on some section; there is a vast unoccupied space all around them; honey is coming in slowly; they draw out the comb, and there is no limit to the size; it may bulge out on both sides, away past the edge of the section, and weigh 1½ to 2 pounds. Later, honey comes in more freely; more bees are hatching all the time, and after a while the case is filled. Later, when the bees more perfectly fill the case, some very straight combs may be found in the same case with some very bad ones. Had this person used separators he would have had all the combs straight, because the few bees would have occupied one or two sections somewhere in the center of the surplus case; where

they had drawn out the combs within about $\frac{3}{4}$ of an inch of the separator, they would have capped it over and gone on to the next section. In this way the honey of no section can protrude beyond the edge of the section, and we have gained our first two points. The combs are scant weight, and they are straight, and we have almost gained our third point; for, when the combs are straight, and do not bulge, there will be very little leaking. We can guard against all leaking if we will cut a piece of newspaper an inch larger than the bottom of our shipping-crate, and place it in the bottom, allowing the edge to turn up all around about $\frac{1}{4}$ to $\frac{1}{2}$ inch.

One more point about preventing honey from leaking. When honey is first stored in the combs it is thin and watery. It needs to be ripened. The water in it needs to be evaporated. Honey may be ripened on the hive; but if it is white it is better to remove it from the hive, because, if left on the hive, the bees will run over it, and the yellow pollen will fall off from their legs, and soil the combs, and the honey has to go for second quality, and be sold at from one to two cents a pound less. If, however, the honey is of a dark color, or is produced in a region where no buckwheat or goldenrod exists, it may be ripened on the hive. The reason why honey should be removed from the hive as soon as completed, if raised in a region where buckwheat exists, is that buckwheat honey, if dark-colored, and if only a few cells of dark honey are stored around the edge, even of the section, it places the whole in a second grade. When honey is removed from the hive, never place it *down cellar*; that is the worst thing you could do, because there is always more or less moisture in a cellar. If you place your honey down cellar, I will tell you what happens. The honey takes on moisture; and as two particles can not occupy the same space at the same time, the cells are expanded, the capping bursts, the contents of the cells become more watery, part of it oozes out, a chemical process takes place, and, the first you know, that honey is all over the floor. You taste of it, and it is sour. I presume what I have just related takes place in nine-tenths of the grocery stores in the country. Grocers are in the habit of keeping their molasses, vegetables, and other produce in the cellar, and naturally the honey goes down there also, and it is damaged more or less according to the length of time it has been subjected to this process of taking on moisture. The customer pays 20 to 25 cents for a comb of that *stuff* called honey; they take it home; they taste potatoes, onions, codfish, and every thing usually kept in a grocery cellar. That fine flavor that bee-keepers talk about is gone, they don't like honey any way. Then people talk about adulterated honey, and no wonder. What shall we do? Ripen our honey above ground, in some dry, clean, warm room where the air is pure, so that what surplus moisture there is will evaporate. If the weather is damp and rainy, use a stove to dry the air, then our honey will thicken and preserve its flavor. When you sell a box of honey, tell the party not to put the honey in the ice-box nor down cellar, but, rather, put it on the pantry-shelf. If your customer is a grocer, give him a few pointers in a friendly way.

And now I come to the fourth point. The one-pound is the standard. The pocketbook argument should have its effect here. First, if you use an odd size you must expect to pay the supply-dealer from 50 cents to \$.00 extra per 100, because it is more trouble to make odd size than regular sizes. Second, you must expect to get less for your honey. I will show you how much you would lose if you used a two-pound section. Suppose 2000 one-pound sections to cost at the factory \$5.00, you could not expect to get 1000 two-pound sections for less than \$4.00; and supposing 2000 lbs. of honey to sell at 14 cents a pound in one-pound sections, you could not expect it to sell for more than 13 cents in two-pound sections. In proof whereof I quote from the *Minneapolis Journal*, dated January 4, 1895.

Honey.—The market is slow, and prices are steady. Minnesota white clover, 14@15c; Wisconsin white clover, 14@15c; dark honey, 10@12c; extracted honey, 7c; 2-lb. comb, 15@14c.

Then we have saved \$1.00 on the cost of the sections, and we have lost \$20.00 on the honey; \$19.00 would be a big Christmas present; but it would be just like finding it, to a bee-keeper who was in the habit of using a 2-lb. section.

I wish to touch briefly upon how to secure the greatest amount of white honey. We hear so many bee-keepers say every year that they did not get any white honey, or very little white honey. The

plan generally pursued by the ordinary bee-keeper is to let his bees alone in the spring until they begin to swarm; then he hives the new swarm, and, after about two weeks, he puts on his surplus-cases. A little knowledge of honey-producing plants, and their time of blossoming, would change all this; for, be it understood once for all, bees do not make honey; they simply gather it, and store it in the hive. In my locality the first surplus honey comes from white clover, in May and June, followed by a short spell of no honey at all, and then comes the basswood the last of June and first of July. Basswood bloom is all over from July 10th to the 15th, and then comes another famine. In order to get white honey in my locality, the bee-keeper must have his bees in condition to gather honey by the middle of May. He must put on his surplus-cases as soon as his bees begin to build brace-combs. It is my practice to tier up as fast as possible, and sometimes I have two or three surplus-cases nearly filled at swarming time. As soon as a new swarm issues I remove the old hive a little to one side, placing it at right angles to the old stand. I place the new hive exactly where the old one stood; place the partly filled section-cases on the new hive; and in less than ten minutes after swarming, the cases are again filled with workers; each worker carries a sackful of honey with her when the swarm issues, and thirty or forty thousand bees can hold a considerable amount of honey. I have weighed new swarms that weigh eighteen to twenty pounds without the hive—in fact, before they had been put into the hive at all. I have no doubt that two-thirds of this weight was the honey in the bees. With me, bees swarm during white honey-flow; and by following the method here described, no time is lost; they go right on, and more cases may be added. Meantime the old hive is moved nearer and nearer the new hive, day by day, until they stand side by side and very close. On the seventh day after swarming, in the middle of the day when the most workers are in the field, quietly and carefully pick up the old hive; carry it quietly, and set it down softly at the greatest distance possible in the same yard, from its former position. Notice the effect. Almost instantly you will see a swarm, as it were, collecting around the place where this hive had stood; they are the workers returning from the field; their home is gone; they are confused, and fly aimlessly about for a few seconds; they alight at the entrance of the new hive; their mother is the queen there reigning; the bees have the same scent; they are received, deposit their load, and go again to the field for more honey. Likewise the workers that were in the old hive which we moved so carefully do not know their home has a new location; they go forth, but return to the old location; they are received, and a rousing swarm is the result. No wonder the honey-sections fill up quickly, as there are so many workers. But what happens at the old hive in its new location? Nearly all its working force has been drained away to the new swarm. In a day or two the new queen hatches. She has few bees to hamper her actions; she makes a tour of the hive, and murders her sleeping sister-queens, yet unborn. She is monarch of all she surveys, and there is none her right to dispute. You will not be troubled with second swarms. No time has been lost since white honey began to flow, and now we have the whole working force concentrated on comparatively few sections. If there is any white honey, we get it. After a week or two we can put sections on the old hive, and all our bees will be in shape for dark or fall honey.

W. H. PUTNAM.

River Falls, Wis.

DRONE-TRAPS, SELF-HIVERS, AND NON-SWARMERS.

DRONE AND QUEEN TRAPS MOST PRACTICABLE; "YOU PRESS THE BUTTON AND WE DO THE REST" HIVER WILL NEVER BE INVENTED.

By C. H. Dibbern.

A good deal has been said of late about how best to manage our apiaries in the bee-keeping of the future. It is generally admitted that,

for small apiaries of, say, less than 50 colonies, it will not pay to spend valuable time watching for swarms, especially in poor seasons; neither will it pay to let them go to the woods. In the large apiaries and out-yards the swarming season is usually a time of great anxiety and loss. Even if one has all his time free to look after the swarms, and every thing ready to do the hiving, it is usually hard hot work; and losses by doubling up and absconding are not always avoided.

Now, as the swarming season will soon be here again, the question is, no doubt, puzzling a good many—"How are we to control swarming?" Of all the many methods suggested of late years, the drone and queen trap method is, perhaps, the simplest and most satisfactory, so far as generally known. What is easier than putting the traps on the hives on the approach of the swarming season, and, when a swarm issues from one of them, simply putting an empty hive in its place, attaching the trap with the queen in it, and allowing the swarm to return when they please? There is no danger of the swarm absconding or doubling up with others as long as you trap all the queens. Should no one see the swarm it makes little difference, as the bee-keeper can easily determine any time, within two or three days, what hives have been swarming out, by finding a handful of bees with the queen in the trap, and fixing them up as desired. Surely this beats climbing trees, or running up and down the apiary with swarm-catchers, *a la* B. Taylor, all to pieces.

But why not carry this idea out further, and let the bees hive themselves? But how is this to be done? is the question I have studied for several years. Last year, and the one before, I described my devices that had proved partially successful; but the season developed serious defects. When the weather became hot, the strong colonies would crowd through the wood-zinc boards under the empty hives, and take possession and build comb there. This made it difficult to tell when a hive had actually swarmed, and it interfered too much with the work in the sections. Then, again, a hive would swarm; and when I supposed them nicely hived they would all go back through the board to their old home, except, perhaps, a handful or so, with the queen. To overcome these difficulties I substituted a solid board, except 4 inches of wire cloth at the rear end, to afford ventilation to the old hive, for the wood-zinc board. This worked all right; and when a swarm issued I would cut off the old entrance, and every bee would go into the new hive, where the queen was trapped, awaiting their return. When not present to cut off the direct entrance I would get only a part of the swarm; but I could always tell what hives had swarmed by looking in at the top, as the new hives are so cut off that the bees never take possession

without swarming. When I found these self-hived small swarms I had but to cut off the direct entrance to the old hive, to throw as many workers as wanted into the new one.

But now another difficulty appeared. When all the entrance was cut off, except through the bee-escape cones, from the old hive, the remaining bees would become alarmed, and commence in a day or two to destroy all their unsealed brood. This may be caused by their inability to get water, as bees never return when once through the escapes. I now leave an inch or so through the lower perforations, so that some bees can work from the old hive. At first I was a good deal puzzled to account for the small number of bees, and entire absence of brood in the old hive at the end of 10 or 12 days. I found invariably that, when cut off so that no bees could return, the unsealed brood would be destroyed. This, perhaps, explains the failure of such devices as the Langdon non-swarmers. I found that about 8 to 10 days was long enough to leave the old hive to boom the new, after hiving the swarm. If the surplus-cases are changed to the new hive at once, the work goes on with little interruption.

It has been urged against self-hivers, that the work and expense of preparing so many hives with foundation, in a large apiary, was too much work and bother. It is not necessary to prepare hives any faster than bees are ready to occupy them. As soon as I suspect there will be swarms soon, I put the queen-traps on all the strong colonies, and keep adding more as I have time. Now, as soon as a swarm issues from one of these hives I allow them to return once. This shows where an empty hive to receive the swarm is needed. I usually mark these hives, and fix them up during the day or evening, as I find time. When they again swarm out the next day or so, I simply place at the entrance a square stick, and fasten by a tack or two, to keep the bees from pushing it away, thus cutting off the old entrance, and compelling all the bees to go into the new hive. It seems to me it would be difficult to manage swarming more easily or more surely. Certainly it beats swarm-catchers, where one must be constantly on the watch, and generally on the jump, or cutting off limbs from valuable fruit-trees, and hanging them in holes dug in the ground "big as a barrel," to keep the swarms from doubling up.

I want to say, I do not claim that my device is entirely perfect, and I have no hivers for sale. Of course, in all such devices one must use a good deal of common sense. I do not believe that a "you press the bottom and we do the rest" hiver will ever be invented. The truth is, bees act very differently one season from another. I do know, however, that the idea is entirely practicable, and will soon come into general use.

Milan, Ill.

RAMBLE NO. 129.

AT NAPA; ON THE SACRAMENTO; JACK; GREASERS; WINERIES, ETC.

By Rambler.

HERE were a few partially civilized Americans living in Black Diamond, and these were allowed to come inside the "dead-line" around our camp. Mr.

Wilder had established such a line with our picket-ropes, to keep the horde of Dago kids from a too promiscuous mingling with our utensils. One of our American friends was pleased with our easy camp-chair, and, having apparently loaded up with beer, would come around and look at us as we worked at the picture business. It pleased him to tell us that he was electioneering for the office of justice of the peace, and had great hopes of election. He evidently thought that each jag of beer taken aboard was a harbinger of success. His heart was warmed toward us, and he gave us a sort of judicial opinion that our outfit was not complete without a dog; and as he had a surplus of that commodity on hand he would give us one. After seeing the embryo justice kick the dog with his heavy boot, and send him home limping, we decided to accept the gift. Jack was a splendid-looking specimen of the water spaniel, and his dam and granddam were traced back to Alaska. Jack adhered to the traditions of his forefathers, and was a good temperance dog, therein showing more sense than his master.



OFF FOR COLLINSVILLE.

We were to cross the river here. We had sought this place, for it was the cheapest one to cross. We were very busy until within an hour of boat time, and our spread-out camp had to be hustled into the wagon. Our would-be justice said we could not do it, and that we should have to wait two days for the next boat. But that man knew no more about hustling than a tadpole. He did not know of the conveniences of a collapsible camping-outfit, and we surprised him by driving to the wharf some minutes before the boat arrived.

The boat was one of the regular river craft

that ply between San Francisco and Sacramento, having a large undershot water-wheel in the rear. We just crossed the river to the town of Collinsville, not over five miles, and were on board less than an hour; and the ferriage, including the dog, was the modest sum of \$4.50. When we landed at Collinsville, and were hitching our ponies to the wagon, a fellow chipped another 25 cts. out of us for wharfage. We demurred greatly, and called it by its right name, a species of highway robbery. The explanation for this state of things is, that the rights and privileges of this waterway are controlled by the Southern Pacific Railroad. Their rule is to carry such an outfit as ours from San Francisco to Sacramento, over 100 miles, for \$4.50, or five miles for the same price, and we have to submit. "For ways that are dark, and tricks that are vain, the S. P. R. R. will beat the heathen Chinese."

We camped at Bird, four miles from the river; and the county we are now in bears the name of an Indian chief, Solano. A good portion of it rests upon Suisun Bay, and 100,000 acres of the county is tule swamp. These tule swamps are very fruitful all the year round, and the leading crop is mosquitoes. It is also a prolific breeding-place for frogs; and their hind quarters are temptingly displayed in the city markets. The next day, as we journeyed, a cloud of mosquitoes followed us. We were, fortunately, facing the coast breeze, and the cloud was left in the rear. Every conveyance we met, and that was going with the wind, had a fuzzy halo of the insects hovering over them.

Our observations in relation to bee culture were not rewarded with much success. Now and then a patch of wild sunflowers by the roadside would reveal various insects upon the flowers; but I saw only one honey-bee. Mr. Wilder saw another, showing that a colony was in the vicinity, bravely holding its own with the mosquitoes. Owing to the flat country, and its liability to inundation, the bee can not find lodgment in the ground; neither are there large

trees or rocky hills; so if the bees live here in the wild state it must be in the cornice of some residence; and even a house with such an appendage is somewhat rare after we leave the towns.

The lands above the river-bottom are devoted to the production of grain, and there is but scanty pasturage for bees. The tule lands are, however, in a fair way to be reclaimed. Great schemes are now on foot, so that, by a system of dykes and waterways, the rivers will be held in their natural beds, and the rich alluvial soil utilized for agricultural purposes. Then these low lands will become the natural home of al-

falfa; and wherever that is grown, we find the thriving bee-keeper; and I am not sure but some portions of Solano County already enjoy the benefits derived from the growth of alfalfa. The hoarse croak of the frog, and the high-keyed note of the mosquito, must give way to



"SANTA MARIA! DYNAMITO!"

the more industrious civilized hum of the honey-bee. It has been said, that the planting of eucalyptus-trees will banish mosquitos from a locality; but here we saw clouds of them while passing through avenues of gum-trees. Perhaps the avenues were not plentiful enough, or enough trees in the avenues. This being near the breeding-grounds of the insects it would probably require a tree to every square rod; and in case they were *Eucalyptus longifolia*, here would be another source of honey for the bees.

Whether it was mosquitos behind our horses, the untiring efforts of Jack to circle around our outfit, or our desire to get our mail, or a little of all three, we made a long drive that day; and in the early evening we dropped into the city of Napa. We were directed to a fine camping-place in the shade of some trees, and in that portion of the city known as Spanishtown. We were congratulating ourselves upon the shady situation, and had scarcely begun to erect our tent, when a woman with a very shady complexion, very large (I judge she weighed 300 lbs.), fat and greasy (you know these Spanish Mexicans are sometimes called greasers) appeared. Her first salutation was, "Why, what a pooty tent you have! Ble've I'll come and sleep in it to-night." Bro. Wilder dropped a tent-pin he was just going to drive, and I dropped a corner of the tent I was holding. Bro. Wilder recovered in a minute, and whacked away at the tent-pins again; and, not knowing what else to do, I took out my Water-

bury watch and commenced to wind, wind, wind. The shady fat woman had a look of curiosity at first; but wind, wind, wind; then a troubled expression of her swarthy features. Wind, wind, wind, and a step toward her, and she took alarm and shouted, "Santa Maria! dynamito!" and fled. No, she was too fat to flee; she got to her little cabin. She evidently thought I was fixing an infernal machine to throw at her.

We were soon after accosted by another Spanish woman, from another cabin. She was quite voluble of speech, and invited us to "beber vino" (drink wine) with her.

"No, señora," said I. "No necesitamos vino. Bebemos agua" (no, marm, we don't need wine; we drink water). We were thankful at last to be left in peaceful possession of our camp. We tied Jack in front of the tent, and, with my good Waterbury watch close at hand, we felt perfectly safe among the shady greasers.

We found in the morning, however, that these people were not all greasers. We could find no wood in the morning with which to prepare our breakfast. I entered one of the cabins to purchase a few sticks. The head of the house said I could have some; and after selecting four or five billets I asked him how much.



"DON'T YOU KNOW I AM A MISSOURIAN?"

"Oh! go along," said he. "We are Missourians; and don't yer know that, wherever you find a Missourian's home, you must walk right into the house and help yourself?"

I pocketed my dime I thought to give him, and paid him in thanks, which seemed to be satisfactory.

Napa is the great center of the wine industry of California. Vineyards and wineries are upon every hand. The viticultural associations and many good people, including some very prominent ladies, recommend the use of wine as a beverage, or as an appetizer at each meal. Owing to a delay in the arrival of our mail and express packages we were obliged to stop over here one day, and we had an opportunity to witness how delightfully the wine-bibbing practice worked.

Several of our Spanish neighbors, of both genders, and including our fat and our voluble acquaintances of the previous evening, gathered under the trees a few rods from us, around a demijohn of wine. It rapidly circled from person to person, until it was emptied; and after a short season it was sent to some convenient saloon and filléd. It then circled again. Result, a young Spaniard slipped from his chair and sought a slumberous attitude on the ground. A blanket was spread, and he was rolled upon it by the fat woman. If he as much as opened an eye, the dames were on hand to offer him more wine. Others of the group staggered off to some more private place to have a lethargic sleep. The señoras wound up their afternoon with what might be termed a jamboree of angry words. As the cool of the evening came, there came also two men and carried, rather than led, the limp form, that was still on the blanket, into one of the cabins. Thus the picture of the afternoon vanished.

Shall we take a little wine for the stomach's sake? Thus far on our journey Mr. Wilder and myself had not patronized the drink-shops, and this temperance lecture before us gave us an opportunity to renew our allegiance to cold water.

I have no sympathy with viticultural associations, for the scene among these poor Spaniards is daily reproduced in higher walks of life, and where the public eye can not behold the lethargic sleep or the domestic brawl. Therefore, still in the ranks of temperance reform will be found the Rambler.

JAKE SMITH'S LETTER.

FIVE-BANDED OR LONG-TONGUED BEES.

Mr. A. I. Gleanings—*dear Sir*:—Our Zed's always a fussin' at something. Last summer he got a lot of oyster-cans and put them on the different hives, with a little bit of feed in them. I didn't mind it, for it was a bad season and the bees wan't a gettin' nothin'; and I didn't care if he did feed em sunthin'. Zed's a good boy, if I do say it, and when he hain't into no mischief I let him have his own fun.

One day Jim Short he come over, and we was

a talkin' about how the corn was a dryin' up without fillin', when Jim see Zed a fussin' at the hives.

"What's Zed up to now?" says he. "He ain't a takin' off honey, is he?"

"Oh, no," says I; "the bees ain't a makin' any honey now. It's a bad year for bees as well as every thing else. I guess Zed's a tryin' to get the bees to hatch out a crop of oysters."

I jist said it for fun, for I knowed he was a feedin' em. And I told him so.

Then he went over toward where Zed was, and says Jim to Zed, "You'll get your bees trained so they'll be no good."

"How's that?" says Zed.

"Why, they'll git used to lookin' to you for feed, and then when any honey does come in the blooms they won't go after it."

"I guess all I give 'em won't spoil 'em very bad," says Zed. "Come and see how much I give 'em."

"Jimminy!" says Jim. "Why, they hain't no feed there at all."

"Yes, there is too," says Zed. "You see, there's a false bottom there. And you see all those little holes in it for the bees to reach their tongues through. Well, there's just a little feed on the true bottom. And the true bottom's on a little slant, so you can tell just how far the bees' tongues reach. They'll suck up the feed just as long as they can; and when it's out of their reach, of course they'll have to stop."

"Oh! I see," says Jim; "you make 'em reach as long as they can, and then they'll stretch their tongues a little farther, and that way you'll grow a long-tongued set of bees."

"Say-ee!" says Zed, "why wouldn't that work?"

"I guess," says I, "you'd have to have a good many stretches to make much difference, and the whole hive would have to be at it all summer long, and may be a hundred summers for any thing I know."

"I guess that's so," says Zed, a fetchin' a long breath. "But that wasn't what I was after, though it ain't so far from it either. You see, bees' tongues ain't all of a length, not by a long shot. Now you see that feed comes up to the seventh hole. Now let's go to this next hive. Two, four, five—this comes only to the fifth hole. You see there's a good bit of difference in the tongues of these two colonies, and it's that way all over the yard. Some of 'em must have tongues a half longer than others. I guess I better get this cover on, for the robbers are gettin' around."

"Well, now," says I, "what good will it do if you take the measure of every bee? It won't make 'em any longer or shorter. If you could make 'em longer you might git 'em to work on red clover. But you can't do it."

"Don't be too sure of that," says Zed. "You can do what amounts to the same thing. Suppose you measure tongues in every hive. Then

breed from the long-tongued chaps, and weed out all the short ones. You know there's been red-clover queens one time and another wrote about. But I guess they all run out in a little while. My notion is, that those red-clover bees had extra long tongues; but the only way to tell it was to see the difference in their yield, and you couldn't keep that up so to rely on it. Now, if you had a red-clover queen to breed from, or, what's the same thing, breed from your longest-tongued bees, and raise drones from the same, don't you see you could tell what you was a doin'? And you could keep that up."

"It wouldn't be no use where there's no red clover," says Jim.

"I believe it would," says Zed. "You know you'll have two hives just alike every way, fur as you can see, and one will store ever so much more than the other, and nobody can tell why. It's the difference in their tongues, along with the difference in flowers. Red-clover honey's too deep to reach. Now, it stands to reason that other flowers may be as deep or deeper than red clover; and even on white clover the bees with the shortest tongues might have hard work to reach all the honey in the blossom."

I thought to myself that wasn't sech a bad idee, but I didn't say it.

Zed went on, and, says he, "When they're tryin' to make out which is the best race, and whether five bands or three bands is best, let them settle it by measurin' of their tongues."

"Yes," says Jim, "first thing you know they'll have a fair, and bees from all over will be sent in to get the prize for the longest tongues. Then they'll quit advertisin' 5, 10, or 15 bands; but the advertisements will read, 'Queens for sale warrant to raise bees with tongues three-quarters of an inch long.'"

OPERATING A BEE-ESCAPE.

THE PORTER AND ITS PRINCIPLE RECONSIDERED

By C. W. Dayton.

I consider that the statement (in *Review* and *Gleanings*), that I was using Porter escapes both in experiment and actual practice, was a fair acknowledgment; but the final report upon them I shall not be prepared to make for a season or two yet. The past season I used four different kinds of escapes in removing 6000 lbs. of comb and extracted honey. Also several colonies were kept busy going through escapes from May to October, and it has become my opinion that the Porter, or, for that matter, the Stampede, is only a "stepping-stone" to an escape which is far better than either.

That escapes are an advantage is no question with me; for, during the past season, I kept an apiary within 54 feet of a much traveled highway. To open a hive and brush bees from

the combs of but one hive sent angry bees thickly after passing teams and people. Escapes, on the other hand, prevented a single molestation. To keep bees and take honey where I was located, without escapes, was positively out of the question. Where bees were once looked upon as a terror, there became a friendly disposition toward them.

When I began to experiment it was found that the bees of some colonies went out much more readily than others. The stampeding disposition was discovered, and some of the forms of escapes sent were far more favorable to stampeding bees than others. Prior to this I had used Porter escapes, but did not inquire into the philosophy of their operation any more than to put them on and remove the supers when empty. But when two escapes, which were exactly alike, were placed upon two colonies apparently alike, and the operation considerably different, it was queried where the differing existed—in the escape or in the disposition of the bees, or what?

The average time taken was perhaps twelve hours; but sometimes the time would be shortened down to three hours. I began to inquire into the reason for having the channel of the single-exit Porter of double-bee-space depth. Then after a bee gets down into the channel, and is about to proceed toward the springs, it must ascend an elevation in the floor. Under this elevation is an opening as if prepared for the deception of bees which were seeking a route to get back into the super. At the side of the elevated portion of the floor are two spaces as if for the passage of air. This elevation in the floor is a hindrance to stampeding bees. Then the round entrance to the channel is widely flanged downward, so as to interfere with stampeding bees passing forward. As a rule, the first bees to try the springs seldom go through until they return and inspect every other part of the escape or escape-board. I don't believe they want to go through the springs. But the depth of the rear part of the channel, and the flanged aperture, prevents their getting back into the super again, and they are finally forced to go through the springs, from thinking there is no other exit; thus when the bees get down into the channel they are in a trap. Observation teaches that, when the main force of bees get started they crowd through without attempting to turn about toward the super. Now, the number of bees which are liable to be trapped by this double depth of channel and flanged entrance to the same does not amount to 50 bees per super, which bees, if joining the throng, would go through in a few seconds. But these arrangements tend to defeat the purpose of the escape by retarding the main tumult. These first bees to test the springs are of a meddlesome disposition, and do not know that they are separated from the queen; and to construct imple-

ments to trap them is impractical. After a while a few of the clustered bees come down on the escape-board. They are not meddlesome, nor will they fight. These are the bees to set up a line of fanners, as soon as they discover the route to the brood-chamber, which rapidly augments in numbers.

Many times I have held the Porter escapes in my hands and wished they (Porters) had only done enough "ax-grinding" to explain the disposition of the bees toward every part of the implement. I would furnish the "stone" gladly. It was the failure in them to do this which caused me to do so much experimenting and philosophizing, and I produced the Stampede to illustrate the necessity of a wider exit; the going-toward-the-light, and other principles. I believe that the going-toward-the-light is one of the best principles in an escape, if we find out how to apply it. If we do not know how to apply it, it may be the worst. I do not think it can be employed in the Stampede or Porter as conveniently as in an escape that is sure to arrive within one or two years hence. I believe the perfect escape will possess a trap, but not a channel. When the bees progress a distance in a horizontal direction, turn an angle, and proceed onward to reach the brood-chamber, energy is wasted, the same as draft is wasted by an elbow in the pipe to the stove. I do not think escapes can be compared accurately by adjusting several in a board. It is the operation of the bees more than of the escapes.

I challenge any one to produce one line of theory from my articles which can not be demonstrated as actual fact, beyond a reasonable doubt.

Florence, Cal.

[Yes, I hope our inventors will not be too backward on this "ax-grinding" act. If they go too far I'll try to shut 'em off.—ED.]

THE PART THAT LOCALITY PLAYS IN DECIDING UPON THE BEST SITE FOR THE BROOD-CHAMBER.

By J. E. Crane.

It is not often that I "take my pen in hand" to write to any of the bee-journals; so that, while I miss saying a good many things I should like to say, I am at least left to judge more disinterestedly in regard to what others write, because I have not committed myself to many of the views advanced.

As I look back over the years, there seems to be something of fashion in bee-keeping as in other things. Only a few years ago, revolving hives and frames were the fashion, though we hear but little of them now. Farther back, large brood-chambers were strongly advocated; and, later, smaller ones have been considered best; and now, again, like the sleeves of a fashionably dressed woman, the tendency is to enlargement. Meanwhile Dr. Miller sits serenely

on the fence, the most sensible man in the crowd.

I do not now remember any good reason for the adoption of a large brood-chamber, unless it has been that bees do better in them. And so small hives were adopted because they were thought to be more profitable than large ones. It has surprised me that so little *proof*, by actual experiment, has been offered. Surely here is a nut for the "Experiment Station" to crack. And yet I doubt whether, if it were conclusively proved that large hives were better than small ones in a given apiary, it would follow that they would be better in some other apiary five miles away. Here in my home apiary I use, mostly, hives with seven or eight Langstroth frames. Some years ago I brought in six or seven hives with large brood-chambers—ten or more combs. As the combs were crooked and irregular I let them remain for several years as they were unless it was to remove the surplus drone comb and substitute worker comb instead. And now I think I can say that I received twice the profit, on an average, from my colonies in small brood-chambers that I did from those in large brood-chambers.

More than this, within a few years a neighbor has put out an apiary near me. He worked for me two seasons, and knew very well how to care for bees before that; but he has kept his own stock in large brood-chambers, while I have kept mine in small. I told him recently that I thought he had not received one-half the profit to the hive that I had, and he was quite ready to agree with me.

Now, does not all this prove quite conclusively that a small brood-chamber is better than a large one? It certainly looks so. But, hold on a little. I have several out-apiaries. One of them, six miles away, I have for several years kept mostly on seven or eight Langstroth frames. Close by it my brother's wife has a small apiary in large brood-chambers, with ten or eleven Langstroth combs to the hive. She does not believe in feeding—says that, if bees can not get their own living, they may die. So she did not feed at all the past season, while I had to feed quite heavily both spring and fall, and her yard averaged more marketable surplus honey to the hive than mine, and I think twice the profit with one-half the care. Hurrah for the large brood-chamber!

Now, here is experiment and positive proof to my mind that both are best and that neither is best. But what makes the difference? What are the principles that underlie the subject that make a large or small brood-chamber more valuable in a given location than the other size? All were wintered alike out of doors, all were on the same size of frame; and, so far as I know, the bees were equally good workers.

I believe we have not far to look for an answer. In my home yard the bees have an al-

most continuous flow of honey from willows and maples, from flower-gardens, fruit-trees, and dandelions, from early April until June, and brood-rearing progresses with great rapidity. The brood-chamber being small, the brood can be kept warm with fewer bees, and more workers are sent to the fields; and, the faster the honey comes in, the faster the brood is spread, and strong colonies early in the season is the result.

How is it in the yard six miles away? The conditions are quite different. Very little early honey is to be had; and, while the small brood-chamber always contains ample honey for present needs (for we feed if they do not), the bees will not spread their brood as fast as where there are from 15 to 20 lbs. or more of old honey at the sides of their hives.

Again, I have found hives with a large brood-chamber and "lots" of honey, rearing brood later in the season than hives with less room and less honey, and so go through the winter stronger.

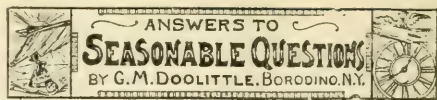
Again, it is necessary to feed colonies in a small brood-chamber much more in autumn to winter them than is necessary to feed to those in a large brood-chamber; and it now seems very doubtful whether sugar syrup is as good to stimulate brood-rearing as is pure honey.

So it comes to pass that, where but little honey is gathered in early spring, the large brood-chamber has the advantage of a small one. But suppose we feed the colony in the small hive very heavily in autumn, will not that help the matter? My experience has been that, where a small brood-chamber is crowded with bees and honey, the bees will rear a large amount of brood in winter, and the vitality of the bees and their stores both be exhausted.

I formerly reasoned in this way: What is the use of letting a colony of bees occupy eleven frames when eight are all they really need for brood and a moderate supply of honey? Why not have the eighteen pounds of honey that it would take to fill those extra combs, stored in boxes which would sell for \$2.00 above the cost of sections, etc., and then in the fall feed 15 lbs. of sugar, which would cost less than a dollar, and thus make a dollar clear to each hive, which, on 500 hives, would be no small sum? The logic seems to be all right; but in practice I have only one yard where it is an entire success, and that is where the bees get an abundance of early honey, and here a small brood-chamber is much more profitable than a large one. In our other yard it would seem to be about an even thing, and in all my other yards the large brood-chamber has decidedly the advantage, unless in exceptional seasons when there happens to be an unusual yield of early honey.

Middlebury, Vt., Jan. 19.

—*Bee-keepers' Review* for February.



INCREASING COLONIES.

Question.—Owing to the past cold winter, bees are coming out very poorly this spring, some having lost from one-third to two-thirds of their colonies, and others nearly all they had last fall. Now, what we wish to know is, how to build up the colonies we have left, so that the combs can be occupied, and our apiaries be prosperous again. We elect you as our general; so, go ahead that we may follow.

Answer.—I am very sorry to hear of the many losses, from reports which are coming in, but am glad to see the cheerful spirit manifested in going about building up again, and will gladly do all I can to help. In this building-up process, all want one or more boxes similar to a honey-case, only having wire-cloth sides, and a hole in the top which will admit a funnel, such as is used in putting up bees by the pound, this hole having something like a door to easily close it with; and one of the wire-cloth sides should be tacked to small wooden strips, and thus made easily removable. All how to make these "nuclei boxes" has been given by myself in back volumes of GLEANINGS. As early in the spring as you can do so without loss by cold spells, begin to stimulate the very strongest colonies you have, by spreading the brood and feeding (being sure that you do not go too fast), so that these colonies may swarm early, thus giving you queen-cells, or build queen-cells for you by the plan given in my book, so that you can have plenty of queen-cells to use as you wish them, if you prefer to raise your queens to purchasing them. Having the queen-cells nearly mature, or having queens on hand by purchase or otherwise, go to the colonies which can spare bees without damaging their building-up as fast as you desire, and take out two frames having to the amount of about one-half pound of bees on them, being sure the old queen is not on these combs. Set them down on the outside of the hive, and tap gently on them so as to cause the bees to fill themselves with honey; and as soon as they are filled shake them down through the funnel into the box, removing the funnel and closing the hole. While the bees are filling themselves with honey, you can go to other colonies and take out frames of bees from them, and thus keep things moving right along, instead of waiting as you will have to if there is only one colony in the apiary.

Having the bees in the box, return the combs of brood to their old place in the hive, marking the one having the most hatching brood, so you can get it in a moment when wanted. Now set the boxes of bees in a cool dark place,

and leave them till near night—just time enough so you can finish your work before it becomes so dark you can not see. At the right time, go to the hive from which you took the bees, and get the marked comb, shaking the bees which are on it in front of the entrance, and put a frame of comb from which the bees have died, in its place. Now take your comb of brood and a frame of honey, left from your dead colonies, and place them in a hive where you wish a colony to stand, putting in a division-board so as to make a small hive for the two combs. Go to your hive having queen-cells, and take one of them, fitting it into the comb having the brood, at the upper edge of said brood. Now close the entrance to the hive; get the box of bees, and put it with the funnel-hole next the combs; open the door over this hole; and if the box is within three-eighths of an inch of the brood, the bees will immediately run out of the box on the combs. As soon as they begin to run out, close the hive, and the work is done till next morning, when you will take out the box, adjust the division-board, and open the entrance. As soon as the young queen from the cell given gets to laying, you are ready to insert your combs from the dead colonies till the hive is filled, giving the combs as fast as the bees can occupy them. In the above, I have given the mode of making one little colony; and you are to make as many and as often as you have colonies that can spare bees and queen-cells to give the bees, using about half a pound of bees for each colony made during June, one pound during July, and two pounds during August. Where we have plenty of combs to use, there should be no trouble in making ten colonies from one old one in the spring, as I have repeatedly proven. If you prefer to purchase queens, instead of raising them, then you will proceed the same as above given; but instead of doing any thing about putting the bees in the hive at night, you will place the queen in a provisioned cage, go to your box of bees, and, by setting the box down suddenly, drop them all to the bottom, when the caged queen is to be hung in so the top of the cage touches the top of the box, and the bees left till the next morning, when the hive is to be fixed as before, less the queen-cell; and, instead of opening the funnel-hole for the bees to run out of it, the movable side is taken off, and the bees hived like a swarm, letting the queen out of the cage so she can go in with them. Or if you do not prefer this plan at all, then let the colonies swarm as fast as they will; and, six days after any swarm issued, divide the old colony into nuclei, using two combs with bees, brood, and a queen-cell to start a separate colony, and build up these nuclei with the combs not occupied with bees. In this way you can make six good colonies from one in the spring, and often secure quite a surplus from the new swarm.

DIVIDING COLONIES.

Question.—I wish to divide each of my colonies just once; thereby securing the increase I desire. How would you proceed to do this if you had virgin or laying queens to give the queenless half?

Answer.—Having the queens on hand, as it is supposed in the above question, go to any colony preparing to swarm, or one that has its hive full of bees and brood, and move it to one side of the old location, so as to put a new hive in its place. If a hive is not full of brood and bees, do not touch it; for it is useless to try to increase bees till such is the case. Now look over the combs until you find the one having the queen on it, when you will place said comb in the new hive. Next give them a frame having some honey in it, and then fill out the hive with empty combs or foundation, when about two-thirds of the bees in the old hive are to be shaken in front of the new hive, and allowed to run in. Now arrange the frames back in the old hive, putting a division-board in place of the frames taken out, when the old hive is to be carried to a new location where it is wished that it should remain. After the bees thus removed have become reconciled to their queenless condition, or in from 24 to 36 hours, give them a virgin or laying queen in a cage, in the mouth of which is enough Good candy so that it will take them from three to four hours to eat it out, thus liberating the queen. When the queen gets to laying, take out the division-board and fill out the hive with combs or foundation. In this way we secure a new swarm, control all after-swarming, and introduce a young queen, all to our liking and with but little trouble.



HONEY-CAKE RECIPE.

As I know a good recipe to make honey-cake, I will publish it for the benefit of others: Five eggs; 2 cups honey; 1 cup sugar; cinnamon; one teaspoonful soda. Beat the eggs with sugar; heat the honey lightly; stir in soda with one spoonful of warm water, then pour it all together. Stir as much flour to it, to roll out for cakes. When eggs are scarce I take two eggs or none, but a cup of lard, two cups honey, one of sugar, etc. I prefer this recipe. I make cakes, or pour it in a pan. It never fails to be good in either shape. Just try it. You and the children will be satisfied. We eat honey three times a day, the whole year round. Guajilla and catsclaw honey have a fine taste. The more you eat, the better you like it.

MRS. ANNIE SCHUDDMAGEN.

Sabinal, Texas.

NO SELF-SPACING DEVICE WANTED.

The 100 thick-top frames I ordered of you, and received Aug. 30, 1894, I think are the best made; in fact, I would not give them for any other. I like a plain frame. I do not like the Hoffman, or a frame with a tack driven in the edge to space them. I always fix the space on the hive, and not make the frames self-spacing; by doing this there is no need of having any other than a plain thick-top frame.

S. F. SAMPSON.

Ronceverte, W. Va., Feb. 11.

[All the manufacturers, I believe, allow their customers the option of self-spacing or non-spacing frames, for it is impossible to please every one with one style of frame.—ED.]

ROBBERS, AND CRACKS AND CREVICES.

I want to say something to you, where you are giving advice about robbing. You say, on p. 251, in the A B C, "Close all cracks and crevices." Now, I want to ask right here, what will start robbing quicker than to have such cracks and crevices in a hive? I want to say again, that, if bee-keepers can't make or furnish hives for their bees, that have not such cracks in, they ought not to keep bees at all.

Big Rapids, Mich.

A. A. JOLDS.

[The item to which you refer was written before the advent of the present modern factory-made hives, with their nice-fitting joints, and referred more particularly to the bee-keeper who made them himself. I agree with you, that there should be no cracks or crevices in a well-regulated apiary; for surely in this case prevention is better than cure.—ED.]

FIVE-BANDED STOCK; DIFFICULTY OF BREEDING THEM TRUE TO MARKINGS.

I ordered, about three years ago, a five-banded queen and two untested queens from a pure five-banded mother. The queens reared from the five-banded queen, in every instance so far as I know, produced queens that, in every respect, resembled the mother—finely marked, and, in the majority of instances, the daughters produced a full three-banded stock, while the other two untested queens, from the five-banded mother, or claimed to be, produced as fine, distinct, three-banded bees as I ever saw; but neither of them was fit to rear queens from. The daughters from them were a motley set, and, in the majority of instances, would produce hybrids, from black all the way to four bands. Some of the daughters from these queens would be black, while others would be yellow to the tip. I keep no black bees in my apiary, and there are but very few in the vicinity—none less than two and three miles. That was my first experience with these bees.

I made a further experiment, however, and found about the same. I ordered, in August, 1892, three untested queens from a pure five-banded mother. This, as in the other instance, I believe to have been from a perfectly reliable breeder. They were all safely introduced, and proved to produce strictly three-banded prog-

eny, but many running as high as four bands—none less than three. I bred from these queens, and found one to reproduce the markings of the mother; but the other two did not reproduce their markings in their daughters. Some of their daughters were not more fit to breed from than a hybrid mother; and I will state right here that no queen that will not reproduce herself in her daughters is fit to breed from. So I came to the conclusion that the first cross on these queens, even if by a black drone, the progeny would be a respectable three-banded bee; but to breed further would be a cross hybrid of the most vindictive nature. My experience proves to me, at least, that all bright queens will not do as breeders; for, while black blood may not show on the first cross, it will crop out in the continuation of breeding, if there ever was the least particle in the mother.

Coronaca, S. C., Feb. 13.

J. D. FOOSHE.

HOW TO PROTECT AN APIARY FROM THIEVES;

A SILENT NIGHT-WATCH THAT BOARDS ITSELF AND WORKS FOR NOTHING.

I have been troubled with thieves in my apiary this season robbing one colony of fine Italians of all the honey, with frames, right after the fall flow, thus destroying the colony entirely. Now, what I should like to know is this: Can I procure some powder cartridges, similar to the 5 or 10c. caution firecracker, sold for 4th of July celebration for the small boy, that will explode by pulling it apart, or, in other words, by friction, instead of a spark of fire? My idea is, to have one of these fitted to a hive using an outer case, and so adjusted that, when the cover or top is removed, it will explode the cartridge, causing a loud report, thus not only frightening the thief, but also giving the alarm to the apiarist. I intend to fix up something that will do the business, even with shells used in a shot-gun, $3\frac{1}{2}$ drams of powder, and heavy wads; but I think cartridges designed for this special purpose, making a loud report, would be much better if they could be procured, which could be exploded by friction of the parts.

JOHN K. GOODRICH.

Waterbury, Conn., Nov. 25.

[It would be rather expensive. I think, to get up a special cartridge that could be attached to hives; and even then, if it worked as planned, it would scare away the thief instead of aiding in his capture. A far better and cheaper arrangement, and one that we once used around a poultry-yard to keep away thieves, is a simple electric bell, small battery, and a spool of linen thread. We simply stretched the thread around where the chickens were housed in small coops. It was black, and was passed through small screw eyes attached to trees. Of course, in the night time this would be invisible, especially if only about two feet from the ground. This thread should run clear around the apiary or poultry-yard. One end should be made fast, and the other tied to a wooden plug slipped between two brass clips, representing the poles of the battery. The battery wire and bell may reach to the house and into the bedroom. The

minute an intruder runs against the linen thread it will draw the wooden plug out and allow the spring clips to come together and complete the circuit of the battery, when the bell will ring in the bedroom and give the alarm, unknown to the thief. In our own case, fortunately or unfortunately, the thief did not come any more. If he had he would have been surprised. Now, this plan will protect 100 colonies at a cost not to exceed \$1.50 for material, and perhaps three or four hours' time in putting up.—Ed.]



THE HEDDON DIVISIBLE-BROOD-CHAMBER HIVE;
THE DANZENBAKER HIVE, AND THE
QUESTION OF INFRINGEMENT.

When Mr. Heddon saw the article by Mr. Danzenbaker, which we published on page 221, he requested the privilege of replying to the same, saying his reply would be fair, courteous, and logical. As Rambler and one or two others had expressed themselves privately as of the opinion that the D. hive was a direct infringement on the Heddon patent, if any thing was, it seemed no more than fair to Mr. Heddon that the request be granted. It is important, I think, that the question of infringement, if any, and just what Mr. Heddon's patent does cover, be discussed fairly and candidly—more so than for the parties to resort to the process of law. The reply is as follows:

THE DANZENBAKER (?) HIVE.

Bro. Root:—I have just read Mr. Danzenbaker's article and your editorial comments regarding the same. On this, above all other subjects, do beekeepers need information. I am very glad to note your sincere and intelligent views regarding our national laws giving adequate titles to the earners of property. First, I will say that I am surprised at your statement that you have not received the *Quarterly* edition of my paper, devoted to bee culture. It was mailed you promptly, over six weeks ago; but we know mistakes will occur in our offices and on our railroads. But now allow me space to make clear to your readers the relation between Mr. Danzenbaker and myself.

Bro. John H. Martin (Rambler), of California, has sent a communication to me which will appear in my April issue. In that communication occurs the following:

Recently in my travels in this State I have found a great variety in the size of brood-frames, and the tendency seems to be toward the shallow frame. Mr. Brodbeck, of Los Angeles, reduces the depth of the Hoffman an inch or more. Mr. Flory, in Central California, uses a similar frame. These straws show the tendency of the times; and the shallower the hive used, the more pronounced becomes the liability of infringement. Mr. Heddon says that, when straws become sawlogs, there is some meaning to them. Here comes the sawlog. When in Los Angeles a few days since, attending our State convention, my attention was called to a divisible-brood-chamber hive, invented and patented by Mr. F. Danzenbaker, of Washington, D. C. I do not know what Mr. Danzenbaker's claims are; but this

I do know, that, at first glance, any person at all familiar with the Heddon hive, would say at once, "Why, there is a Heddon hive." A closer examination reveals the fact that the thumb-screws are missing; and the case, instead of having eight frames, contains ten, and there is a sheet metal lining in the ends which also serves for supporting the frames, which are a duplicate of the Heddon. In making his frame close fitting together, and also to the case, the combination is clearly an infringement upon the Heddon claim.

The sheet-metal lining and rest, or frame-support, used by Mr. Danzenbaker, we consider very objectionable, expensive, and a failing effort to overcome supposed weaknesses that do not exist in our hive.

That sheet metal will not hold the frame tightly together, nor tightly to the case, for shaking and inverting; and if it would, it would be an infringement upon that special function of my invention, in the use of close-fitting frames, at the same time closely fitting the ends of the case. Whether Mr. Danzenbaker's features are better or worse, they can not be made, used, or sold, without laying all parties liable for infringement. My circular quotes patent laws, giving all the reasons why. The only damage Mr. Danzenbaker's hive can do is to lead bee-keepers into infringements, and away from better devices.

Mr. Martin says that a brood-chamber, made in divisible parts, and used as specified in our patent, is well adapted to California, and we are sure he is correct; for it is equally adapted to any spot on earth. While it was constructed principally for safety and time-saving in manipulating the apiary, it has been repeatedly demonstrated, since we brought out the hive, that a divisible or multiple brood-chamber winters bees more safely, and that they breed up faster in the shallow tiers of frame, than in any other style of hive. Hundreds have so testified; but, as stated before, to fully carry out safety and economy in manipulation, the frames must be fixed, and our manner of adjusting them tightly to each other at their ends, by the use of set-screws, and sufficiently close to the ends of the case that they are readily movable, yet the bees can not go behind them, is the only one we believe to be possible, so long as bees keep their present instincts. The set-screws are the only device which will securely hold the frames, for the needed manipulations in carrying out to completion the new system of management. Mr. Martin is acquainted with the state of the art, consequently he knows what is my property, and in his article makes that knowledge known to our readers. It must be his inquiry relates to the question as to whether there may not be a flaw in the title upon which I depend for the protection of my property. I am quite certain there is not, Bro. Martin; but if there were, do you understand that bee-keepers would rob me of what they know to be the results of my labor, provided the sheriff was absent? Laws are not virtues, but necessary evils; necessary to protect virtue and industry from crime and idleness. Law doesn't make right and wrong, *per se*. You know of what my invention consists, and you know it is my property, whether I had any patent-deed to it or not. But I have, as you know; and allow me to add that it is a good strong one, for, as the great authority, Walker, states, "The state of the art to which an invention belongs, at the time that invention was made, must be considered in construing any claim for that invention."

Since Langstroth was robbed, a patent court of equity has been established. This was done in 1870.

The establishment of that court enables you, my rambling brother bee-keeper, to make a much better guess as to how I shall come out when I am compelled to defend my natural rights in United States courts than could a judge on the United States supreme bench, who was not acquainted with the state of the art to which my invention belongs. The patent court of equity gives unto Cæsar the things which are Cæsar's. We have no dispute about the ownership of what the state of our art shows through its literature and otherwise, as was brought forward by me.

The divisible brood-chamber, with its collateral functions, was constructed especially to carry out a new system of management, neither one of which was known before the issuance of my patent. I have none, nor could I have a patent on any particular depth, length, or capacity of a frame or brood-chamber. My patent covers a divisible brood-chamber, *used as and for the purposes specified in said patent*. These purposes specified are the same as have been time and again written in bee-journals, my circulars, and book. There is no mistaking it, and no getting around it. In Langstroth's time, a popular method of deceiving the public was to procure a hive-patent on some minor or inconsequential feature which the claims covered, while the specifications (of which the drawings form a part) *showed* the essential features of father Langstroth's valuable patented invention. The uneducated public supposed it had a right to use the "patented hives," just as illustrated in the Jones, Smith, or Brown patents; but no such thing is true. They procured the right to use only what was *claimed* in the claims in these worthless patents, the patent office presupposing that Jones, Smith, and Brown would purchase of Mr. Langstroth the right to use his invention before they would use or sell their own. It is as though I had invented a bundle-carrier for a McCormick reaper. Before my invention is available, I must procure a right of Mr. McCormick, or sell my invention to him for what I can get for it. A patented machine or manufacture may infringe some other patent just as much as one that is not patented; remember that. Also, please remember that a patent is not property, but an attempt to give a title to property.

One writer has asked me why I don't begin prosecution against Mr. Danzenbaker. Why should I make haste? In most cases it is much cheaper and better for me to begin suit against his customers; but why make haste? Every one infringing my patent is liable, and the law gives me six years after the expiration of my patent, or until 1908, to collect royalty from all who infringe. There is no hurry; nearly all bee-keepers are fairly well informed, and it is rarely that one would make, use, or sell the Danzenbaker hive without knowing he was infringing, as certainly as Mr. Martin, the reader, and ourselves know it. It is, perhaps, a fact that we have done too little in the direction of introducing the new hive to the public.

Bee-keepers have been so writing us ever since our last issue of *The Quarterly* containing the more complete directions for properly making and using the hive, written by a thoroughly honest and unbiased friend. So far as our financial interest is concerned, which is by no means the paramount one, we have been in no hurry, knowing that time

would bring the truth uppermost, and feeling wholly secure in our patents.

There is also another phase to this subject. That strong sense of justice among bee-keepers, mentioned in your editorial, will very likely make it unnecessary for us to spend large sums of money in U. S. courts, provided the people are properly informed regarding the rights and wrongs of inventors, and it rests largely with our literature as to whether or not honey-producers shall receive such information.

JAMES HEDDON.

Dowagiac, Mich., Mar. 20.

In the meantime Mr. Danzenbaker was advised that Mr. Heddon would reply to his article then in type. In anticipation of this he directed his attorney at Washington to send in his opinion on the legal aspect of the question, to us. It was received before Mr. Heddon's article, and is reproduced herewith:

The A. I. Root Co..—Mr. F. Danzenbaker requests me to give you an opinion upon the question of infringement of the patent to James Heddon, for bee-hive, No. 327,268, issued Sept. 29, 1885, by such a hive as that shown in Mr. D.'s patent, No. 521,873, issued June 26, 1894.

A careful comparison of the hives shown in the respective patents discloses a similarity of structure only in the following respects; viz.: Each hive is composed of several (three) removable cases, containing respectively brood-frames and honey-sections, and each has a similarly made top or cover for the hive. Such similarity being found to exist, the question is presented, Has the Heddon patent any claim which, by a fair construction, can be held to cover the same, and hence be infringed by the Danzenbaker hive? In my opinion, this question must be answered in the negative.

The only claim of the Heddon patent, that even remotely touches upon the features of construction common to the two hives, is the 5th; but under no principle of construction, recognized by the courts, can his claim be held to be infringed by the Danzenbaker hive, because the latter does not contain the cleats and thumbcrews that are specified as essential elements of the combination in said claim. To infringe this claim, a hive must not only contain the thumbcrews and cleats, as the means for holding the brood-frames in position, but such screws and cleats must have substantially the location and relative position specifically defined in the claim.

The scope of this claim of Heddon, furthermore, is not only restricted by reason of its express limitations, but by the fact that the records of the Patent Office, in connection with his patent, show that he was not the originator of a hive composed of several horizontal sections, to enable the capacity of the hive to be increased or diminished according to the size of the colony. When his application for patent was pending, Mr. Heddon tried to obtain the following claim:

"In a bee-hive, a brood-chamber constructed of two or more horizontal separable and interchangeable sections."

This claim the Patent Office refused, as being to a construction that was old at the time of Heddon's invention, as shown by patents 33,668; 196,060; and 203,890, and the claim was accordingly dropped. You will see that this claim contains no such limitations as the 5th of his patent; and had he secured

the same, he could well assert the Danzenbaker hive to be an infringement. Unfortunately for Mr. Heddon, however, not being the *first* inventor of the subject-matter set out in said claim, he had to content himself with the 5th claim of the patent, with its limitations to thumb-screws and cleats, and he has no right to prevent others from making hives having a brood-chamber composed of two or more horizontal, separable, and interchangeable sections, unless they use in connection therewith the thumb-screws and cleats.

No principle of patent law is better settled than that, where an inventor in applying for a patent makes a broad claim, and drops it in view of its refusal by the Patent Office, and in its stead takes a narrow claim, having limitations to a construction not specified in the rejected claim, he can not be permitted to repudiate the limitations of his narrow claim, so as to make one an infringer who does not use what is specified in the claim, but uses only what was set forth in the claim originally made and dropped because of its rejection by the Patent Office. This is Heddon's position exactly.

In view of the foregoing, it is my opinion that, upon neither *legal* nor *moral* grounds can Heddon properly claim that he is entitled to stop the manufacture and sale of the Danzenbaker hive.

Washington, D. C. C. J. WILLIAMSON.

The 5th claim of Mr. Heddon's patent, referred to above, reads as follows:

In a bee-hive, a brood-chamber consisting of a series of reversible and interchangeable cases, each of said cases being provided with thumb-screws extending through one side, and with cleats at the corners of the other side and facing said thumb-screws, and of a number of reversible frames rigidly secured therein between said thumb-screws and cleats, and a stand and cover, substantially as and for the purpose set forth.

I have already sent for the copies of patents stated by Williamson to cover the divisible-brood-chamber idea; but at this date they have not arrived.

I desire to take no side in this matter, any more than to give each party a fair and impartial hearing.



EIGHT extra pages as usual.

THE two-pound vs. one-pound section question is very nicely answered by W. H. Putnam, in his paper in the Madison convention report in this issue.

Do not forget that now is the time to distribute the little pamphlet on bees and fruit, among neighbors who are disposed to call the bees a nuisance.

THE editor of *Review*, while admitting that the cutting-down of the labor item by the use of labor-saving hives helps to make a success of the business, says that, "if the flowers fail to yield nectar, all the short cuts in the world will not save us." Quite right, Bro. H.

WHEN a writer condemns a thing he has never tried, and speaks from his own standpoint, and not from that of another, and judges from his own climate, and not from that of another, his criticism is weak, to say the least.

THE February *Apiculturist* comes to hand with a smiling face and a cordial good will to all its sister-cotemporaries. It is largely, as are the preceding numbers, made up of editorial matter written in Mr. Alley's characteristic style.

THE editor of the *Review* agrees with me in thinking that Mr. Boardman is one of the keenest, brightest, and most intelligent bee-keepers we have. He is a man who writes but little, but thinks much. He has followed the bee-journals closely; and now that we have succeeded in getting him to write a few articles for GLEANINGS, I shall expect something unusually good from his pen. In this issue his articles are begun again.

CARDS are beginning to come in thick and fast, showing that there is a strong desire on the part of our readers for the continuance of the discussion, large vs. small hives. We have received only one request to have it dropped. So, unless the straws, or "sawlogs," point differently, we will keep up the question a while longer. It is a very important subject, and each bee-keeper should settle it in the light of the discussion brought out for his locality. Upon its right solution hinges largely the bread-and-butter side of bee-keeping.

A SUBSCRIBER writes that he likes our way of tiering up hives in the cellar for wintering, but he wants to know how to get rid of rats and mice. Our plan is none other than that used and recommended by H. R. Boardman; namely, piling bottomless hives, with cover sealed down, one on top of two others, so as to leave a large open space at the bottom. If the cellar is not mouse-proof, and can not be made so, use "rough on rats" or some other poison, nicely concealed in one or two kinds of food, as described by a correspondent recently. If there are only mice, the nicest way is to use common traps.

PERCOLATOR SYRUP A SAFE WINTER FOOD.

WE fed our bees last fall in two different ways. The majority of them were fed by the percolator plan, and the rest with syrup made in the old-fashioned way— $\frac{2}{3}$ sugar and $\frac{1}{3}$ water, by the use of heat. Although the former were fed with very much less labor, and with far less danger from robbers, and with no heat or mussing of pans or cans, they wintered just exactly as well. You see, the percolator syrup is made half sugar and half water. The bees receive it in a condition about as thin as nectar from natural sources. They ripen it thoroughly, and of course it is the best feed

they can have. I shall expect that, in a series of years, comparative tests will show that such feed is far preferable—that is, that thin syrup is much better than thick feed, either early or late.

THE HIGGINSVILLE AND GABLE COVER MIXED.

It appears that some of the correspondents of our exchanges, in criticising the Higginsville gable cover and the ventilated gable cover, have got the two mixed. It is perfectly evident that they have not studied carefully the engravings and descriptive matter of each cover; otherwise they would not make such blunders in their criticisms. The ventilated cover is intended primarily for the South, and all climates where the sun pours down hot. It is not a cover that I would personally use, as I prefer a single-thickness cover, flat on the under side; but as all people can not be made to think alike, and as climates vary greatly from each other, manufacturers try to make covers that will suit all classes and conditions. Why one should condemn one style and praise another, I can not understand. One might as well condemn climate.

DO BEES TRANSPORT EGGS?

CONSIDERABLE speculation is now being indulged in as to whether bees ever transport eggs in their hive. Most authorities in this country seem to agree that they do. So far as I am concerned I know that they do, for I have seen them carry eggs—not once, but a number of times, and I do not understand why our good friends the Germans have not seen a similar thing. Mr. Hasty, in commenting in the *Review* on the fact of my having witnessed the transportation of the egg, says I “neglected to follow on and see whether the egg was used for lunch or queen-rearing, or what.” This is true; but I was not then particularly interested in the point, because I assumed that the mere fact that they carried them at all was evidence that they intended to use them in some queen-cell. This they may have done, but I feel tolerably sure that bees do at times use them for “lunch,” for I have repeatedly noticed, as have others, that, when I have put a frame of eggs into a colony, for the purpose of obtaining queen-cells, two or three days afterward a large portion of the eggs would have disappeared.

HASTY ON GLEANINGS.

THE following very kind notice is from one of our old correspondents—Mr. E. E. Hasty:

Let me see; what kind of paint did I put on GLEANINGS the last time she was in dry dock? Whatever coating got put on for some of the promising writers seems to have peeled off since. I was going to name John Smith as a “peel-offer;” but Jake, after sleeping in his bunk for many months, has been on deck quite recently. But if there is a little peeling off occasionally, GLEANINGS is the same nice ship—same assortment of captains and

pilots, and same boa's'n. And she rides the waves of the hard-times cyclones a little easier than any other craft. No other seems to be saying, “Eight pages extra this time.” The editorial work in the line of travel notes and interviews keeps well up, if not expanding a little in space. Friend Norman seems to be the new “middy,” with more frequent hearings from friends France and Dayton. Portrait-publishing, which had declined a little, is being revived. The opening number of the year has two excellent portraits; and the persons are people of general interest whose pictures have not been trotted around much if at all. They are John T. Calvert, of the A. I. Root Co., and N. E. France, of E. France & Son. And putting footnotes of the GLEANINGS variety on the Straws gives an added vivacity to the first page of late.

Coming from such a source, it is highly appreciated, and we tender friend Hasty our sincere “thank you.”

WINTER LOSSES.

OUR wintering loss up to the 20th of March was only 2 per cent, out of a total number of over 200 colonies. Three of the colonies were made up of a number of small queen-rearing nuclei, united late in the season. Such made-up stocks are liable to succumb any way, so we always take our chances on them. The other colony was one of those handsome five-banders.

Winter losses among careful and expert beekeepers this winter will be comparatively light; but among the slovenly and slipshod it will be heavy. It seems to be a fact that cold winters (that is, continuously cold), where the beekeepers are of the class first mentioned, are favorable. The bees do very little brood-rearing, and the spring usually comes on quick, and opens up warm and balmy. As I have often remarked, it is not as difficult to *winter* bees as it is to *spring* them. Well, then, if the winter suddenly turns into good warm spring, as we *hope* it will do this spring, and as it generally does do after such a cold winter, this spring will be comparatively easy on the bees. There! I am afraid I am counting the chickens before they are hatched.

NON-SWARMING DEVICES AND FIVE-BANDERS.

EXPERIMENTER TAYLOR, in the *Review*, in referring to non-swarming devices, says, “One can hardly avoid the suspicion that the Langdon device and the Conser hive depend for their success upon principles which the bees are by no means uniformly careful to observe.” From all I know regarding these non-swarmers, I think Mr. Taylor is about right. Further on, referring to the five-banded bees and his experience with them, he says:

Though called “golden Italians,” I should have pronounced them any thing but Italians, judging from the disposition they exhibited. While they are not the most irascible of bees, they are yet very nervous, and quick to manifest a recognition of intrusion, from which characteristics I should have

judged them to be largely of Syrian blood. But the most noted characteristic exhibited by at least one of the two colonies was an inclination to rob. If there was any attack to be attempted on a colony, or any chance to pry into a case of honey, about one-half the would-be thieves out of a large apiary were from one or both of these colonies. It is to be hoped that this peculiarity may stand them in stead in the gathering of nectar when an opportunity occurs.

I can personally vouch for the truth of Mr. Taylor's statements; for while I was in his apiary last summer they exhibited several of the characteristics he has pointed out.

THOSE GIANT BEES OF INDIA.

PERHAPS our readers will remember seeing in our columns an advertisement of "Giant Bees." We accepted the card for two insertions, and in the mean time wrote to the advertiser, asking him to send samples of the bees, as it is not our custom to accept an advertisement of a novelty unless we know what it is. We received no response to our first request, and finally wrote again, and still the request was ignored. We dropped the advertisement, and finally the following card came to hand:

I have been led into the Giant-Bee business through my ignorance, and am out \$14 cash. I should like to have you discontinue my advertisement. I have received a good many letters and postal cards asking for descriptions, samples, etc., but no orders or money. If I receive any it will be returned at once. I have answered none of them yet, and am very much ashamed of having been mixed up in this matter. C. D. HOLT.

Murray, Ky., March 12.

Inasmuch as Mr. Holt claims, in the *American Bee Journal*, that the drones of the "Giant" bees will fertilize queens in confinement—yes, several of them—even in a queen-cage, it is evident he could not be fully informed in regard to the habits of bees or of the experiments that have been made in the past. We should not have inserted his advertisement in the first place; and it is due to our readers and Mr. Holt's patrons that his card should be published.

I do not mean to give the impression that Mr. Holt intended to be dishonest; but it is a little singular that he refused to send samples of the bees or reply to those who wrote. If he really has the bees, and inasmuch as he has advertised them, it seems to us he ought to be willing to send at least the editors of bee-journals dead specimens, even if it is difficult for him to get live ones at this time of the year. The \$14 that he refers to is probably the total cost of advertising in all the bee-journals.

WAX ADULTERATIONS, AND SIMPLE METHODS FOR DETECTING THE SAME.

SINCE our last issue we have been carrying on quite a series of experiments, taking wax of known purity, wax adulterated with paraffine,

and wax mixed with ceresin, and carefully noting the results in each case.

I procured a lot of test-tubes, such as are used by chemists, and told the foreman of our foundation department to put a small quantity of each of the samples into each tube. These, together with a thermometer, were to be placed in a bath of water, the temperature of the water to be gradually raised, when he was to be careful to observe the melting-point of the contents of each tube. The different tubes were numbered, and the results are shown in the following table:

No. 1, white wax, commenced melting at 156° F.; entirely liquid at 160.

No. 2, half wax and half ceresin; commenced melting at 160; entirely liquid at 166.

No. 3, red wax, probably Southern; commenced melting at 152; entirely liquid at 158.

No. 4, recently bought wax, commenced melting at 153; entirely liquid at 159.

No. 5, ceresin only, commenced melting at 163; entirely liquid at 172.

No. 6, half wax and half paraffine; commenced melting at 140; entirely liquid at 148.

I will explain that No. 3, the red wax, is a product from the South or from Cuba, the real color of which is a brownish red, and at first it appears to be suspicious; but, as I shall show later on, it is probably all right. Nos. 1, 3, and 4 are probably pure wax. The slight difference in the melting-points is due to the amount of dirt, or whether the wax had been recently remelted often or not.

Now, then, referring to the table you will see that the pure wax begins to melt at from 152 to 156, and becomes a perfect liquid at from 158 to 160. You will observe that No. 6 (wax that we adulterated ourselves) half paraffine and half wax, commenced to melt at 140, and became liquid at 148. No. 2, half wax and half ceresin, commenced to melt at 160, and became liquid at 166. No. 5, pure ceresin, began to melt at 163, and became liquid at 172. We therefore observe that the melting-point of ceresin is much higher than that of wax, and that paraffine is correspondingly lower. No. 6, half paraffine and half wax, shows the melting-point just where we should expect it. No. 2, half wax and half ceresin, shows figures that are half way between the pure wax and pure ceresin. You see, therefore, that something can be told by the melting-point of doubtful pieces of wax. I wish to remark right here, however, that the text-books put the fusing-point of wax anywhere from 145 to 150. This, doubtless, applies to wax as it comes from the hives, and which has not been rendered previously. It is observable that, the more wax is melted over, the higher the fusing-point, and the tougher it becomes.

Now, then, I want to give you a simpler and easier test, and one that may be, I think, fairly reliable. In our last issue we quoted from

Cheshire, giving the alcohol test. But he seems to assume that it is valuable only for the detection of *grease*; but we find that it will apply not only to grease, but to *wax* and *paraffine* as well. We procured a large Mason jar—one holding two quarts; and in the bottom were put several pieces of wax of known purity. Water was poured in, to a point say half full. Of course, the wax would all rise to the top. Alcohol was then added until the wax had settled to the bottom; then we took a piece of No. 6, half paraffine and half wax, and found that it floated readily; also a piece of No. 2, half wax and half ceresin, did the same. Pure paraffine and pure ceresin seemed to be more buoyant on the surface of the liquids, as a matter of course. Later on we took a sample of wax containing 10 per cent only of ceresin. It hovered nearer the top of the liquid, but did not seem inclined to come entirely into the "bad company" of the pure ceresin and pure paraffine, and the mixtures, 50 per cent of each.

The alcohol (or specific-gravity) test is not entirely reliable, but sufficiently so to put the wax-buyer on his guard, and cause him to have a chemical analysis made. I think there is no question but that the mixtures of half ceresin and half paraffine can be readily detected by the above test; and it is to be assumed that, if adulteration is practiced at all, the mixers will put in at least 50 per cent of the cheaper article, and that, likely, would be either ceresin or paraffine.

These experiments were performed in my presence by our Mr. Kindy, foreman of the wax-working department, and Mr. Karl Rudolph Mathey, who, I found, is quite an expert in the wax business. He tells us that the Germans make ceresin foundation, two-thirds ceresin and one-third wax—that is, they sell it for what it is; but from what experiments we have made, I am rather of the opinion that the bees will not work this article nearly as well as they will pure wax; indeed, we find it impossible to roll foundation from *pure* ceresin. It is too hard and brittle, and is lacking in that ductile quality so necessary in hive-work, and would not, I imagine, be very suitable in the hive, even when mixed with pure wax.

The ordinary paraffine of commerce has a beautiful milky whiteness, and, as explained, it has a lower specific gravity than pure wax. It is more ductile, and has a lower melting-point. Ceresin, in color, may be milky white, or so nearly resembling the color of wax, as to deceive the most expert, from its mere appearance.

We are now buying our supply of wax through a New York inspector, who has made this business of sifting the adulterated from the pure almost a life-study. To give you an idea of how the fakirs are trying to palm their adulterated goods off on the unsuspecting, let me give you an instance. Out of 23 sacks of wax that were inspected by him, only 17 were ac-

cepted, and were subsequently shipped on to us. I can hardly think that any of the foundation-makers have been deceived. The adulteration of wax has seemed to spring up within a year; and I trust that the simple tests above given will assist our co-workers or others to "spot" the spurious at once.

ROOT BROTHERS' HOME REPAIRING OUTFIT.

LET me explain, to begin with, that the Root brothers are no relation to A. I. Root. That is, they are no relation without going away back. Their celebrated repairing outfit was first worked up by George A. and C. F. Root, in the middle of the year 1890; and I remember of being greatly pleased to see the unique engraving of the cast-iron lasts, clinch-nails, etc., when they first put it out upon the vaxed. You now can readily understand how vexed I felt when I saw unscrupulous imitators come out and copy even their advertisement before the idea had been out in print much more than a year. One of the first men to copy their idea entire, without so much as saying "by your leave," was one John H. Grant, of Chicago. I have had in mind, for a year or two past, holding these imitators up to public gaze; but I finally decided that the man who would appropriate ideas would, sooner or later, take other things, and so I let him alone, thinking it was not really my affair, any way; but the paragraph which I give below, from the *Rural New-Yorker* of March 9, seems to open the way to give Mr. Grant a little free advertising. Read it, and then give the gentleman a wide berth.

There may be a less satisfactory business man in this country than John H. Grant, of Chicago; but if there is, the *R. N.-Y.* has yet to find him. We contracted with him recently to furnish a kit of tools for our subscribers, at a certain fixed price. When we sent him the orders, he shipped about one-half the tools promised; and when we complained, he assured us that we had made a mistake—that he had two sets of tools, and that he had given us prices on the small kit. His story seemed plausible, and we accused ourselves of a blunder, and told him to send the rest of the tools at our expense. We also ordered the large kit sent to 27 more persons. This he promised in writing to do at once, six weeks ago, and sent us a bill for the same. We then supposed that he had sent them; but finding that the tools were not delivered, we kept writing to find out why. He now has the impudence to write that the orders are not filled, and that they will not be until we comply with unreasonable demands, which he now mentions for the first time. Fortunately, we are able to get the tools elsewhere, and we have sent the orders to another factory, where they will be filled promptly, and where we will get our future supply. This explanation seems due to the subscribers who have been so long and patiently waiting for the tools which they should have received weeks ago. All the orders will now be forwarded at our expense to those who received only a part of the set. The full set will also go promptly to those who have received none.



SACALINE—THE NEW AND WONDERFUL FOR- AGE-PLANT.

I find that much interest seems to be centering in this new plant. I have already seen it growing at the Florida Experiment Station, at Lake City. While it does certainly promise a good deal, the statements we find in the seed-catalogs are, without question, greatly exaggerated. As an illustration, the following is copied from a circular, with cut:

Is perfectly hardy, even in Siberia—Flourishes in the Indies.
Requires no plowing before planting.
Needs no cultivation, no manuring, no replanting.
Roots penetrate deep into the soil.
Once planted, stands for ever.
Endures severest drouth with impunity.
Grows in poorest soils. Luxuriates in wet lands.
Thrives where no other forage-plant will grow.
Young shoots and leaves eaten as a veg-table.
Stems and leaves, green or dry, greatly relished by cattle, sheep, and horses.
More nutritious than clover or lucerne.
Gives three and four cuttings per year.
Produces 90 to 180 tons of green forage per acre.
Grows 14 feet high by June.
Excellent soil-enricher. Planted at any time.
Affords shade to cattle in summer.
Protection against storms in winter.
Floods will not destroy it. Fire will not kill it.
Cattle can not trample it out.
Seed has been sold at \$100.0 per pound.
Indorsed by the highest authorities.

stock is limited. Some who have tested it claim that their stock will not eat it. This may be because they have been too well fed. It may be, also, that they have not learned how, or have not acquired a taste for it. The wild cattle in Florida will not even eat corn meal or bran, without "learning the trade;" and a cow that is dying with starvation would die all the same if ears of corn were all around her. Under very favorable circumstances, the plant may grow from 12 to 14 feet high, and so will a good variety of field corn down on the rich corn-bottom land of Missouri—at least, it comes pretty near that. The claims, however, of "90 to 180 tons of green forage per acre," I should say, are away off—that is, if we are to understand by the above that this enormous product will be eaten by "cattle, sheep, and horses."

You will notice the plant is said to be hardy from Siberia to the Indies. Well, when I saw it in Florida, toward the first week in March, the growth of last year was all killed down to the ground—killed, I suppose, by the frost; but new shoots had started up, some of them a foot away from the original plant. These shoots were from 3 to 6 inches in height. By permission I picked some of them, and felt certain by the taste that all kinds of stock will eat it—at least, in this stage—and I also think it likely it might be cooked like asparagus. As to whether one would want to eat it unless he was very hungry, will have to be tested by experiment.



SACALINE (*Polygonum Sachalinense*) THE NEW FORAGE AND HONEY PLANT.

It will, without doubt, grow from 6 to 10 feet high in a season, on any tolerable soil, when well started; and I believe cows and horses will eat it to some extent when it is young and tender, especially after they learn how. In this respect it is something like sweet clover. It takes a year or two, if I am correct, for it to get firmly rooted. After that it makes this tremendous and extraordinary growth. We can furnish the seed in five-cent packets, but

Last, but not least, there are reports floating around that sacaline is a great honey-plant. I can not find out any thing very definite in regard to it. There do not seem to be any "posies" in the picture, but perhaps the plant had not got quite tall enough to bear honey when the photograph was taken.

We will give further reports in regard to it as soon as we get hold of any thing really authentic.

ELECTROPOISE, OXYDONOR, ETC.

THE "BLIND LEADING THE BLIND."

Beware of false prophets, which come to you in sheep's clothing, but inwardly they are ravening wolves. Ye shall know them by their fruits. Do men gather grapes of thorns, or figs of thistles?—MATT. 7: 15, 16.

Electropoise has been imitated. Just think of it! Somebody, excited by the idea of getting \$25.00 for what costs about as many cents, has copied *Electropoise*! The new machine is advertised, with the names of twelve ministers of the gospel to back it—at least, they have got "Rev." before their names. The thing is more cheeky than even *Electropoise* itself. It also claims there are many imitations. It will not only cure people, but it will make *plants* grow. The picture of it is so exactly like that of the *Electropoise* that you can hardly tell one from the other. Price \$25; or you can rent it for \$3 a week. They admit there is nothing inside of the little metal case except sulphur and carbon. I really do not understand why people can not copy it and make one themselves. But the manufacturers say it is "combined in certain delicately adjusted proportions." Here is a sample of their reasoning. To show how this machine takes oxygen from the air and transfers it to the body:

We take from page 8 of Oxydonor circular:

HOW DOES IT CURE?

Electricians have known for years that any body connected with the earth by means of a conductor, like a wire, soon becomes "negative."

A square and positive untruth in the outset. Nothing whatever passes along the wire under the circumstances mentioned.

The earth attracts the positive fluid from the body; and as all bodies have both positive and negative electricity in them, when one is withdrawn the other remains.

Another untruth.

We now know that difference of temperature lies at the bottom of this transfer. Hence, if the little plate of the "Oxydonor" be attached to the ankle, and the metal cylinder—or "vocol"—be placed in a temperature colder than the body (as in ice, cold water, or air), the positive fluid leaves the body and goes to the colder substance, thus leaving the body "negative." So much is plain.

Exceedingly plain, Mr. Oxydonor; by supporting the human body, or any other body, on a stool with glass legs, or insulating them in any way, this insulated body may be made either positive or negative, by means of a suitable electrical machine. But the idea that human bodies, or any thing else, becomes positive or negative when standing on the ground uninsulated, is a simple absurdity, even if it is quoted over and over again by venders of quack medicines.

Now, we are surrounded by the air, four-fifths of which is free oxygen gas, and—

Now, I do not know whether this is a sort of typographical blunder, or whether it is part and parcel of their other *awful* misstatements. We have given them the benefit of the former. Common air is about one-fifth oxygen and four-fifths nitrogen. See under "air" in Webster's dictionary. But let us now take the last half of the sentence.

—oxygen gas has a strong affinity for the negative state.

One begins to be puzzled a little as to what they mean by a "negative state." If they mean electrically negative, then it is another stupid falsehood. Oxygen has no more attraction for a body negatively electrified than a horse has for a snapping-turtle. One statement would be just about as sensible as the other.

Therefore, because you are connected with a colder substance, because that colder substance draws the positive fluid from you, thus leaving you "negative," because the air is touching your body at all points, because the oxygen of the air is free, and has an affinity for the negative state—you absorb the oxygen in the skin and tissues. The colder the substance with which you are connected, the more rapid the transfer of positive fluid, the stronger your negative condition, and the more intense the absorption and action of the oxygen.

This last scientific (?) explanation of the way in which Oxydonor works is just like what I have quoted above. There is just as much science to it as there is in the ravings of a maniac.

Now, if any of you think A. I. Root is making a mistake, and that he is doing injustice to an honest invention, find an educated man, if you can, who can make any sense of the above quotation. A good man may pass counterfeit money by mistake, not knowing that it is counterfeit; but the man or men who *made* the counterfeit money did not make a mistake. And the men who make *Electropoise* and *Oxydonor* did not make a mistake. They *knew* they were humbugging the people by lies; and the men who put up this little metal case, filled with sulphur and graphite, know that it has no virtue, exactly in the same way that the counterfeiter who is at work with his counterfeiting-tools knows the money he is making is not genuine and honest. Quite a few who use the machine are now admitting that it is not electricity, but they claim these people have discovered some new and heretofore unknown force or agency for the cure of the disease. My friends, if a new force in nature had been discovered, the whole scientific world from the Atlantic to the Pacific would be in an uproar about it. It would be of a thousand times more importance than a new planet, comet, or any thing of the kind. But the truth is, scientific men and scientific journals know nothing of any such discovery, for no such discovery has been made, in fact; and yet we have a case where a schoolteacher is taking the thing into a school and teaching the pupils that it is a scientific instrument! Again, they are making an excuse for charging \$25 for a thing that costs only from 40 to 50 cts., by saying that it is customary nowadays. Everybody who is charging more for a book than it is really worth, or for some secret in agriculture, or for some cure for disease, seems to have got hold of the following story. I will give it briefly in substance:

A big factory was standing still because they could not make the engine work. They telegraphed for a man, and with two taps of his hammer he made it all right, and took the next train back to his city home. His bill was \$25.25. When asked to explain, he said the 25 cts. was for doing the work, and the \$25 was for knowing how.* Now, a great many people are repeating this, and thinking it is the honest truth. I want to say that I have never met with such a case in all my experience, nor any thing like it. We get experts from the large cities, to teach us how to do any thing we want done, or to make plans for us, etc. They charge us for only their time and traveling expenses; and we seldom pay a man more than three or four dollars a day.

While in Orlando recently, a subscriber of *GLEANINGS* told me that his pastor's wife had recently purchased an *Electropoise*, and, like

* Quite a compliment the above story pays to the ability and skill of the engineer placed in charge of the engine belonging to a great factory. I rather think our engineer would smile somewhat to see a city chap—one of the know-how sort—doing things after that fashion.

all the rest, she thought it was doing wonders in the way of improving her health. My friend heard of it, and gave his minister, who is a Congregationalist, a copy of our journal. He read it carefully, and what do you think the verdict was? Why, he spoke out square and honest, as any educated minister of the gospel must speak. Said he, "Why, Mr. Root is right about it—unquestionably right. There is no possibility of his being mistaken." It is this way: Sense and reason stand back of even *personal experience*. Two and two make four—always have made four, and always will. Now, somebody might as well say that two and two make five, and that they know it by personal experience, as to say these things cure disease. We need a shaking up, all of us. If sense and reason can not be made to come uppermost, we had better go straight to an insane-asylum—the whole lot of us.

OUR HOMES.

As I sit down and think of the two pleasant months I passed away down in those Florida homes, not only pleasant memories, associations, and recollections come up, but there comes also a feeling that God *called* me to go down there, and that it was his purpose to teach me some valuable lessons. I am going to try to tell you one of them. During all of those two months I was an *invited guest* in somebody's home. Sometimes the invitation came about in a strange way—I might almost say in a mysterious way. You know—

God moves in a mysterious way
His wonders to perform.

Well, I was, as I told you, an invited guest almost every day and every hour. It was quite an abrupt change from many business cares to a life of ease, and of being ministered *unto* instead of ministering to others. Here at home, with my many responsibilities and more or less things constantly going wrong, which I must set right, it is not very strange that I get into a way of—well, we will say of remonstrating when people are thoughtless; and I am afraid sometimes that I am not just as kind and courteous to imperfect humanity as you might judge by my talks and teachings. I hardly need tell you that, when one goes "visiting," and accepts an invitation, he is, at least for the time being, on his "good behavior." He is not to complain, no matter what unpleasant things come up. Why, the man or woman would be a churl indeed who would scold and find fault while a guest in the home of somebody else. Let me make haste to tell you, however, that I did not, during all my trip, find any thing to scold and find fault about. Some accidents happened. It was unexpectedly cold in Florida, and they were not prepared for it, and I had to take my share of putting up with every thing as we found it. But I did not find any thing to complain of nor to feel cross about. You may be surprised when I tell you that I really *can not remember* of having spoken an unchristianlike word during that whole trip; and I can almost say that I did not have an unchristianlike feeling. It surprises me when I think of it. Is it really possible that A. I. Root passed two whole months of his life without being what you might really call wicked, or having a wicked or unchristianlike thought? There must be some explanation for this. There is an explanation. When the time came for me to leave for home I did not really want to go. Perhaps I felt something as Jonah did when he was com-

manded to go down to Nineveh. I was not called, however, to go down to Nineveh to *preach*, and I did not do any preaching, unless, indeed, I did something that might be called preaching on that one particular Sunday I told you about. One great secret of this wonderful change and transformation was that I asked God for grace in the very outset. I felt afraid that I should, by my abrupt or restless disposition, hurt somebody's feelings. Therefore, when I started out I prayed earnestly for grace to do my work *well*, whatever work it should be. It does not seem to me that I did very much work after all of *any* kind. In fact, in one sense it does not seem to me that my visit amounted to any thing—that is, so far as doing any particular good is concerned. In another sense it amounted to something wonderful, for I met kind friends, a host of good, bright, intelligent, earnest men and women, who "loved righteousness and hated iniquity;" and I felt again and again, as I bade them good-by, "Why, I would not have missed knowing these good people for any thing in the world." They taught me great lessons, and, I presume, without *thinking* how much good they had done me. I verily believe that the thought of that Florida visit will make my heart bound until the last day of my life. I love our nation of people better than I have ever loved them before; and I love God more for having given me these pleasant glimpses of *other people's* "homes."

Circumstances and events seem to have strangely crowded me, or pushed me, as it were, into the very inner lives of many people. One of the pleasantest calls I made was where I visited a bee-keeper away off in the wilderness, expecting to call just one brief hour. I was taken sick, and it was not thought best for me to ride back through the woods, in the cold. You see, it was during the February freeze. I did not get any better, and I was obliged to stay several days. Sickness and suffering finally obliged them to take me into the very inner circle of their little home in the woods. As the man and wife were, however, professing Christians, we did not have a very *hard* time in getting along together. One of the days was the Sabbath; and as I was really too sick to sit up much I leaned back in an easy-chair and we exchanged religious experiences, read from the Bible, and sang Gospel Hymns. Again and again my thoughts go back to this brother and his good wife; to that little home with its bees and chickens and garden, and the dainty little spring beside the babbling brook under the palm-trees but a little way from the house.

Dear friends, do you not remember how often we see inscriptions, not always in the cemetery, where they commence, "Sacred to the memory of ——" and then follows the name of some dear departed one. I think it must be God's Holy Spirit that has been suggesting to me that we need not *wait* until our friends are dead and gone before we erect a little shrine in our hearts, "Sacred to the memory of —," somebody who is yet full of life; and I have taken great joy and pleasure in thus erecting a host of little shrines stowed away in the little corners of my heart, "sacred to the memory of" the Florida homes I have visited. I might think these friends did not enjoy my visits as I enjoyed them, were it not for the postal cards and letters that keep coming now—reminiscences, as it were*. Then I fall to wondering if, in my

*Here is a brief extract from one of the postals:

We all feel the better for your coming; and all join in sending you our best wishes. Come again, please. Surely "goodness and mercy" have "followed" you these many years. All the bee-world will say amen.

awkward way, I may not have given some good brother or sister pain by my carelessness. If so, I wish to assure such that I did not mean it, or did not intend it.

Just a little more about that lesson God wanted to teach me. Several times I met people with whom we had had little differences. Sometimes it was some one whom our people had refused to send goods to because they did not know all about them. In one case a veteran bee-friend, and one of the shining lights in bee culture, moved from Iowa away off down to Florida, and did not tell us he had done so—that is, when he made an order for something, just in the way he was in the habit of doing away back in Iowa, he forgot to tell us he was the same man, down in Florida. Had the clerks come to me with the order, I should have known our old friend at once, even if he was down in Florida; but in this case he not only overlooked our blunder, but he hailed Constance and myself as we were on the way to a hotel, and gave, as an excuse for so doing, that their weekly paper had already announced in plain print that we were staying at his home. When I looked astonished at such a procedure he good-naturedly replied, "Why, Mr. Root, didn't you know that obituaries are often written before people are really dead?"

When the letters of invitation came, asking us to go to certain points, I did not always know any thing about the people; but the fact that they wanted me to make them a visit was sufficient; and I never inquired, and scarcely ever thought about, what particular church these people belonged to, or whether they belonged to any church at all. The result was, I visited people of various denominations, and was taken right into the homes of people who represented almost all kinds of belief. Sometimes I laughingly suggested, when the family Bible was handed to me, that perhaps I was not used to conducting worship in their way. The reply was, invariably, "Brother Root, we will worship God this time in your way."

The matter of giving thanks at the table, I found, is also conducted in quite a variety of ways. Sometimes I did not readily "catch on," but I really believe that one of my pleasantest experiences was in having some good brother or sister, in a most kind and friendly way, explain to me their ways, or the forms in use by their particular denomination. Are you surprised that I began slowly to have a broader charity than I had ever had before? One very pleasant visit was with a brother who did not profess any religion. He told me at the outset that we had better not discuss theology, because we would only get mad.

"Oh! no, dear brother, we shall not get mad—I'm most assuredly shall not."

"Oh! yes, you will get mad if I tell you the plain truth. If you do not, you will be the first Christian I ever met who did not. They get mad, every last one of them, when people of my class come right out and take the liberty of believing what we choose, and telling the truth in plain English."

Then he told me of some of the things he had said to ministers, and the reply that the minister gave. Now, I am really afraid that, before I made this visit, I should have said the minister did about right. But I think now he made a mistake. You see, I was an invited guest; and, besides, I had given a sacred promise—at least it was sacred to me—not to get mad. My friend with whom I was riding said some severe and cutting things about our faith; and, oh I am so glad that I replied gently and mildly. This friend recommended books and writers who speak disrespectfully of the Bible and of the Christian religion. Of course, I could not agree with him here.

Well, the next day as we were riding away off through the great pine forests we called at a humble home where there was quite a flock of children, and not very much for them to read. My companion said he had brought along a bundle of papers for the family, and in some way I got it in my head that he would naturally bring them something that might teach disrespect to Christianity; and if so, I felt like making a protest. How do you suppose it turned out? Why, dear friends, that bundle of papers I had been looking at suspiciously turned out to be some old worn copies of—what do you think? *Gleanings in Bee Culture!* I asked God to forgive me for my uncharitable thoughts; and when I reminded my good brother that the Home Papers in those back numbers would teach the children Christianity, he looked up with a laugh, and said he believed he would rather risk the children with such teaching than any thing else he knew of, even if a good deal of it was fallacy and superstition. O dear friends, I am sure there is something wrong in having such wide differences between God's people and those who do not see things as we do.

At another home I found they belonged to a sect who worship God on the last day of the week, instead of the first. But my heart had been considerably mellowed by this time. I assured the brother who came for me Saturday night, that, had I known of his religious convictions, I should have greatly enjoyed worshipping with him on his Sabbath instead of mine. Then I should have been obliged to have two Sundays, some of you may suggest. Not necessarily. He lived away back in the woods; and while I was his guest I could have done as he did, without any violence to my honest convictions.

The great Father, it would seem, had still another experience in store for me. I was obliged to hire a livery, to be taken five or six miles to the home of one who had given me an invitation. The liveryman said I would find "my man" at a camp-meeting of Spiritualists, for he was one of the leaders. I found him just a little before the meeting opened. In fact, there were other bee-keepers present also with their families. Would I care to attend one of their meetings? Yes, I told them I should be glad to. Dear brother or sister, if you should feel like criticising my course, let me say that the earnest follower of Christ Jesus can go anywhere unharmed if he holds fast to the strong arm of Him who once said to the winds and the waves, "Peace, be still." The speaker's stand was spanned by a beautiful arch on which was the text, "Peace on earth, good will toward men." The hymns that were sung were such as we generally use in our places of worship. The music was most beautiful. A bright young daughter of my friend played the violin, and another bee-keeper's daughter played the guitar. In a little time it was announced that the address would be made by a speaker who would speak on any subject that any one of the audience might suggest. I was called upon to furnish the subject. After asking the Holy Spirit to guide me, I wrote on a piece of paper, "Thou hast loved righteousness and hated iniquity." Two other subjects were given the speaker, and I believe that, in his address, he included all three; but in order to reach the train I expected to take, I was obliged to leave the tent before the discussion was ended.

I have found it a pleasure to do business with your firm, as goods are always carefully packed and promptly sent.

Portland, Ind., Feb. 25.

WM. N. STOUT.



FLORIDA FOR HEALTH.

Before I go any further, I think I must answer a few questions in this line. When I left home, I was suffering from a severe cold that had settled into a kind of bronchial trouble, that has followed me more or less winters ever since I was away up in Portland, Ore. After being in Florida three or four weeks, this entirely disappeared. My appetite greatly improved, and I was particularly impressed with the fact that I could sleep better than I had been able to for years. I used frequently to ask the privilege of going to bed when it was only eight o'clock in the evening, and I often slept soundly until the sun was up and shining in my face next morning. This is a new departure for A. I. Root. During the last four weeks I was in Florida, as a consequence of this, I learned to omit entirely my naps in the middle of the day. Since I have been home I have been feeling more vigor and strength of mind and body than for years past, unless, indeed, it was when riding the wheel. I can not ride my wheel now here in Medina, for the roads are too muddy.

Well, you will find people all over the State of Florida who went down there to live because they could not live anywhere else; and quite a few say they came without any expectation of living many months *anywhere*. I do not know whether it is the beautiful climate, or whether it is spending so much time sitting in a rocking-chair on the veranda, or whether it is the general fashion of taking things easy, that makes people get well and strong in Florida; but I have been told many times that careful statistics show the death-rate according to population to be less than in any other State in the Union; and this, too, right in the face of the fact that the State is the general rendezvous for invalids from all over the world. If this is true, it is something really remarkable. By the way, I want to say, too, that I did not once feel a bit of my old nervous prostration. I got around lively every day, as I do anywhere else, and enjoyed lots of energy, strength, and enthusiasm during the whole time. I was told several times that nobody ever has grip down there—at least, in the southern part of Florida; catarrh is also almost unknown. Some eight or ten years ago a young lady worked in our office, who was quite deaf. She finally went to live with a brother at Sorrento, Fla. Most of you remember Nellie Adams, who used to advertise queens from that point. When I met her I expected I should have to shout to make her hear; but as I noticed she heard every word of the most commonplace conversation, I said, "Why, look here, Nellie, how does it come that you are hearing every thing we talk about? What great doctor brought about this cure?" She replied in substance that she had reason to believe it came about from living in Florida. When she was here in Ohio, she was troubled with catarrh, which became so bad that it affected both her hearing and speech. She noticed her trouble began to improve almost as soon as she arrived at her Southern home, and it finally disappeared entirely. Since then she has been North, and stayed a whole year at a time, but she hears perfectly.

Now, friends, before spending very much money with doctors or medicines I would try at least a few weeks in Florida; and by all means try Florida rather than Electropoise, or

anything else of that ilk. If you have not very much money, you can rent some sort of domicile very cheaply, and you can get along down there as economically—that is, if you are so inclined—as in almost any place in the world. A great part of the year you do not really need any house at all, except for the looks of the thing; and if you do not care to put on much style, food and clothing may be had for a very small sum, comparatively.

It occurs to me that I may have put the matter of health pretty strongly in the above, and perhaps it may be no more than fair to say that a great part of Florida is occupied by people who have taken up homesteads. They have 160 acres of land, but they really make use of not more than five or ten acres—that is, a great many of them do this way, and every homesteader is anxious to have neighbors. He would sell five or ten acres very cheap—sometimes he would give it away in order to have somebody move in and start a settlement. There are lots of towns—that is, they are towns on the map—in Florida where there are not any houses at all. At Gifford Station, for instance, which is to be seen on the map, there are no houses, not any station, nor even a platform—no, not even a crossroad. There is a sort of road that runs parallel to the railroad, and the town is supposed to be somewhere on this parallel road. Well, you see people are very anxious to have towns built up, because that would advance their property. They are interested everywhere in having people move in, and, as a natural consequence, they are all the while studying up the advantages of their locality. This is good, and I am glad of it; but it has a tendency to make everybody honestly think that *his* locality is an *exceedingly* healthy one. I was led to believe there might be some honest bias in their opinions, because so many will say, "Oh, yes! over at so and so it is *sickly*. They have malaria and fevers;" and at some other place they will tell you that there are mosquitoes, fleas, etc., so that a body can hardly live; "but where we live you don't have any troubles of this kind. See how well I am. There ain't anybody sick anywhere in this neighborhood." I did find people sick, however, in some places, but it was mostly rheumatism. Even Florida does not seem to be proof against some kinds of this dread disease.

DEATH OF MR. HENRY NEIGHBOUR, SENIOR

MEMBER OF THE FIRM OF GEORGE
NEIGHBOUR & SONS.

The above announcement comes in the *British Bee Journal* for Feb. 28—another reminder that the veterans in our industry are passing away. For more than a quarter of a century the name of George Neighbour & Sons has been almost a household word in apiculture; and notwithstanding the criticisms that dealers in apicultural implements are pretty sure to get now and then, I can not remember that I have ever heard a reflection cast on the business methods of the above-named firm. Their dealings, and their whole lives, in fact, seem to have been characterized by a sort of manly integrity and gentlemanly bearing that it would be well for us to imitate on this side of the great water as well as the other. Perhaps it would be well to mention that one of the standard works on apiculture in England comes from this same firm. A. I. R.

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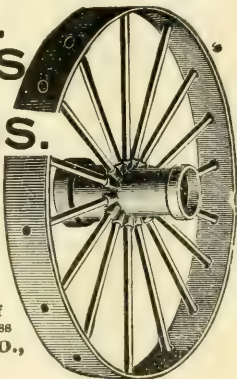
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JNO. NEBEL & SON, High Hill, Mo.

METAL WHEELS for your WAGONS.

Any size you want, 20 to 56 in. high. Tires 1 to 8 in. wide—hubs to fit any axle. Saves Cost many times in a season to have set of low wheels to fit your wagon for hauling grain, fodder, manure, hogs, &c. No resetting of tires. Cat'l'g free. Address **EMPIRE MFG. CO., Quincy, Ill.**



500 Barrels Sweet-Potato Seed.

Yellow Jersey, best variety, \$3.00 per barrel. Red Spanish, Red Bermuda, and Jersey Queen, \$4.00 per barrel; 5% discount on 5-barrel lots. Our stock is fine. Order now and secure a supply at reasonable prices. **L. H. MAHAN, Box 143, Terre Haute, Ind.**

SOUTHERN AND EASTERN AGENCY
FOR A. I. ROOT'S BEE-KEEPERS' SUPPLIES
AT A. I. ROOT'S PRICES.

RAWLINGS IMPLEMENT CO.,

Formerly Balto. Farm Implement Co.

Jobbers & Dealers in Farm Implements & Machinery

209 S. Charles St., Baltimore, Md.

23-9601

STRAWBERRY AND Best New and Old varie
RASPBERRY PLANTS. ties. Best grown Plants.
Catalog Free. With in-
structions for their culture. Send for it Now.
Mention this paper. Address

P. O. Box 213. E. J. SCOFIELD, Hanover, Wis.

USE THE

COMMON-SENSE

BERRY-CRATES and BASKETS.

None cheaper. For circular address

entf

H. H. AULTFATHER, MINERVA, O.

Sweetheart.

A Regular Sugar Lump.

LEADS { Early, Large, Handsome, Good Ship-
ALL { per, Best Quality. Send for circular
WATER- { giving important facts to growers and
MELONS { shippers, with comparative sales and
ON { opinions of many commission men in
THE { leading northern markets.
MARKET. { Seed, Packet, 10 cts.; 1 lb., \$1.50.

ALBERT WITTENMYER,

Originator, Grower, and Shipper,
Emison, Knox Co., Ind.

CHOICE

SWEET-POTATO SEED

Yellow Jersey (the best), Red Bermuda, and Yellow Nansemond, at \$2.50 for 11-peck barrels, till sold out. 4-8

L. H. REDD, De Soto, Illinois.

The New Craig Seedling Potato.

For full description of this Potato, see page 959 of this journal for Dec. 15, 1894. Prices: 1 lb. by mail, postpaid, 25 cts.; ½ peck, by freight or express, \$1.00; peck, \$1.75; ¼ bushel, \$3.00; bushel, \$5.00; barrel of 11 pecks, \$12.50. The above prices will hold good as long as our stock lasts. All orders by mail will be filled as soon as received. Orders by express will be shipped at once unless ordered otherwise. All orders for potatoes by freight will be filled April 1, or soon after that time, unless directions are given to ship at an earlier date. In this latter case I do not assume responsibility for loss in freezing; but where it is desirable to ship earlier, and customers have bad luck, I expect to help them out so far as I can consistently. In regard to my responsibility I would refer you to A. I. Root. In fact, where it is more convenient you can order potatoes of the A. I. Root Co., instead of sending your orders to me.

GEO. E. CRAIG, Zimmer, Franklin Co., O.

Every Farmer

Ought to read the Rural New-Yorker.

(Published weekly.)

It is the business farmer's paper, and a most reliable authority on agricultural and horticultural subjects. Frauds and humbugs fear it. ONLY \$1 A YEAR. Send for sample copy to

THE RURAL NEW-YORKER, New York.

We have made arrangements so that we can send it and GLEANINGS for \$1.75 a year.

Please mention this paper.

Control Your Swarms, Requeen, Etc.



Send 25c for samples of West's Patent Spiral wire Queen-Cell Protectors, and Pat. Spiral Queen Hatching and Introducing Cage, also best Bee-Escape, with circular explaining. Twelve Cell-protectors, 60c; 100, \$3. 12 cages, \$1; 100, \$5, by mail. Circular free. Address **N. D. WEST, Middleburgh, Scho. Co., N. Y.**

Sold also by all the leading supply-dealers.

Best ~ Goods

At lowest prices are what we are all after. The *quality* of Cary's goods has never been questioned. His X X white thin foundation and polished one-piece sections are the finest on the market. His bees and queens are from the best strains, and reared and shipped in the way that long years of experience have shown to be the best.

He has the largest stock of **BEE-KEEPERS' SUPPLIES** in New England; and as to prices you have only to send for a catalog and compare them with those of other dealers.

To those living in the East, there is the still further consideration of low freight rates. Address

W. W. CARY,
COLRAIN, MASS.

300 Colonies Of A No. 1 Italian bees in 8-frame Dov. hives **cheap.** Queens, bees by the pound, and a full line of new first-class apiarian supplies. Send for catalog to Box 783, Belleville, Ill.
E. T. FLANAGAN.

OTTUMWA BEE-HIVE FACTORY.

Bee-keepers, look to your interests. Every thing in the line of bee-supplies constantly on hand. Price list free. **GREGORY BROS. & SON,**
1-23a Ottumwa, Ia. South side.

WINTER now is over!

And if you contemplate buying
Bees and Queens

you will do well to write
For prices to

LEININGER BROS., FT. JENNINGS, O.

W. O. Victor, of Wharton, Tex., took

45,000 Lbs. of Honey in 1894.

He offers Italian Queens—good, old-style honey-queens—untested, first order, to any address, at 50c each. Also bees in any quantity; 450 colonies to draw from. Root's goods constantly in stock. Prices to suit the times. Buy near home, and save freight.

25 Imported Carniolans

Ready for immediate delivery at \$5 each. Bred in 1894 at the most elevated point among the Carnic Alps where bees are kept. Daughters of these queens ready in April, \$1 each; \$10 per doz. Address

The Carniolan Apiaries, Charlton Heights, Md.

Rose Comb White and Brown Leghorns,
And Silver-Laced Wyandottes.

15 eggs, \$1.10; 39 eggs, \$2.00.

J. W. COOK, Poneto, Ind.

2 and 3 frame nuclei cheap by the dozen.
AUG. LEYVRAZ, Francis, Fla.

THE SOUTHERN Home of the Honey-Bee

Is ready for your orders for 3 or 5 banded queens, as good as the best, guaranteed free from paralysis. Warranted queens, 75c each; tested, \$1.00. After June 1, warranted, 50c each; tested, 75c each. Good breeders, \$2.00. Straight 5-banded, or "faultless," queens, \$2.50 each. Special prices on lots, also to the queen-dealer. Safe delivery and satisfaction guaranteed. Circular free. Address

HUFSTEDLER BROS., Clarksville, Tex.

Look Here!

I will give 10 per cent off on all cash orders of \$5.00 worth of supplies or over, except foundation, up to May 1st, 1895. Send for catalog to manufacturer.

J. J. BRADNER,
Marion, Grant Co., Ind.

MUTH'S HONEY-EXTRACTOR, SQUARE GLASS HONEY-JARS.

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "Practical Hints" will be mailed for 10c in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.

Hives, Sections, Foundation, Bees, Queens,

Or any thing a Bee-keeper Needs.

In April and May I shall receive from the South (via steamer) cases of 8 frames of capped brood, well covered with bees. These are just right to build up colonies with.

Single frame, 90c; 4 frames, \$3.25; 8 frames, \$3.25; 8 frames, \$6.00; 16 frames, \$11.00.

Untested queens included for 90 cents.

Every thing sent from this city. Let me know you want. Catalog free.

I. J. Stringham, 105 Park Place, N. Y. City.

Golden Queens From Texas.



My queens are bred for business, as well as for beauty and gentleness. Safe arrival and reasonable satisfaction guaranteed. Untested, \$1.00; tested, \$1.50.

Write for price list.

5-16ei

J. D. GIVENS, Lisbon, Texas. Box 3.

Dovetailed Hives.

Sections, Extractors, Smokers, and every thing a Bee-keeper wants. **Honest Goods at Close Honest Prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

SEELEY'S GOLDEN ITALIAN QUEENS

are large, beautiful, bred for business, equal to all, and superior to many. Untested, April, 80 cts. each; 1/2 doz., \$4.50; May, 70 cts. each; 1/2 doz., \$4.00. Tested, \$1.00 each; fine breeders, \$2.00 each extra. Fine straight 5-banded breeding-queens, \$4.00 each. Satisfaction and safe arrival guaranteed.

E. A. SEELEY, Bloomer, Ark.

P. O. Money Order office, Lavaca, Ark.

7-20



Notes of Travel that were written for this issue were crowded out by a mass of other matter. They will appear in our next.

BEESWAX WANTED.

Since our last we have received a goodly number of good-sized shipments of beeswax; but we can, for the next two or three months, use all that our readers can send to us. We are paying now 29 cts. cash, 32 in trade, for average wax delivered here.

ALSIKE CLOVER SEED.

We have a good supply of choice seed, and it is plenty early enough to sow. There are many good reasons for sowing. Price of seed, \$2.00 per peck; \$3.80 per half-bushel; \$7.20 per bushel; \$14.00 for 2 bushels; 5 bushels or over, at \$6.60, bags included in each case.

CHOICE EXTRACTED HONEY WANTED.

We are in need of choice extracted basswood and clover honey. We prefer it in 60-lb. cans; but if we can not get it that way we will take it in some other way if we can buy it. Those who have a supply which they desire to sell, we shall be glad to hear from, with samples, stating quantity you have, how put up, and the price.

WHEELBARROWS AND LAWN-MOWERS REDUCED.

We call your attention to the adv't on the 3d cover page, and to the marked reduction in price, especially on lawn-mowers, which we have reduced one dollar each from the prices of last year. Surely at these low prices there are few in need of a mower who need remain without one. We still offer the same styles we have sold for several years.

PLANET JR. GARDEN IMPLEMENTS.

We are now supplied with this year's catalogs of Planet Jr. tools, which we shall be pleased to mail to those interested, together with our net-price sheet. We are making lower prices on these excellent tools than ever before, and there have been some valuable improvements added. Write for catalog, if interested in hand seed-drills, for all kinds of garden seeds, onion-sets, etc., hand or horse cultivators for all kinds of work in the garden.

CARLOAD SHIPMENTS.

Since our last report we have shipped the second car to Florida, to A. F. Brown, at San Mateo; a second car to F. A. Salisbury, Syracuse, N. Y.; a second carload to Wm. A. Selser, 10 Vine St., Philadelphia, Pa.; a carload of export orders through the port of New York, including about a third of a car for J. H. M. Cook, 78 Barclay St., New York. As we go to press we are loading a car for H. G. Acklin, St. Paul, Minn., which will be followed by one for G. G. Wickson, Los Angeles, Cal., and another to Barteldes & Co., Denver, Col.

MAPLE SUGAR AND SYRUP.

The weather so far has been very unfavorable to the production of the delicious sweets from the sugar maple, and the season is so far advanced that there can be at best but a light crop in this vicinity. Few will take the trouble to make sugar if they can get a market for syrup. Our orders for syrup are all filled, and we can supply many more at \$1.00 per gallon, in quantities, for choice syrup. We have booked a number of orders for sugar, but so far it has not been offered to us for sale by the producers, and we may be obliged to disappoint our friends; but we hope soon to be supplied; can offer no better prices than named in our last, and these only subject to our being able to get the sugar to furnish on orders we receive.

HIVE-MAKING MACHINERY.

If any one is interested in an outfit of machinery for hive-making we have a bargain to offer at Ottawa, Kan. The outfit consists of a 4 H. P. engine and boiler, a hive-dovetailing machine, a saw-table with a lot of grooving-saws and cutter-heads, a 10-

inch foundation-machine, and other tools. Cost new over \$600. Is in about as good condition as new, and can be bought for \$225 cash. Will send further particulars to those interested, on application.

WIRE NETTING AND FENCING CATALOGS.

We have for some time been short of wire-netting catalogs, but we are now supplied with a large new edition which we shall be pleased to mail those interested, on application. It includes a discount-sheet giving very low prices, and incorporates a page describing a new and very cheap sheep and hog fence. We are also prepared to furnish No. 12 smooth galvanized fence wire, 100-lb. bundles, at \$2.25 per 100 lbs., or barbed wire at \$2.75 per 100 lbs.

LABEL CATALOGS EXHAUSTED.

We regret to be obliged again to disappoint our friends who apply for label catalogs. Our store is exhausted, and our printers are now and have been so crowded with work that they have been unable to print a new edition. It is likely to be six weeks or two months before they will be able to complete an edition. We have a number of new designs in honey-labels, which will appear in the new catalog when ready, and we trust it will be ready in good time before the next honey-crop is taken. We will file all applications, and send catalogs as soon as ready.

SWEET-CLOVER SEED WANTED.

If you have any for sale, mail us a sample, tell us how much you have, and what you will take for it. By the way, it is really remarkable what a demand there is getting to be for sweet clover; and I for one should be very glad to know what people do with it. We are just now in receipt of an order for 350 lbs. Some time ago I used to feel troubled about large orders, for fear the friends did not know what they were ordering, and did not know what they wanted; but with the steady demand that is coming in now, there can hardly be a question but that it is being used as a fodder crop, or for something else besides these. Can anybody enlighten us?

OLD-STOCK SECTIONS.

We still have the following list of old-stock $4\frac{1}{4} \times 4\frac{1}{4}$ sections, made two, or three years ago, which we offer, to close out, at \$2.20 per 1000: 3000, \$6.00; 5000, \$9.00; 10,000, \$16.00.

109,000	$4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$	open top and bottom.
12,000	" "	open four sides.
9,000	" "	$x\frac{7}{8}$ to fl., closed top.
7,000	" "	open top and bottom.
8,000	" "	cream, or No. 2, new stock.
5,000	" "	$x1\frac{1}{4}$ closed top.
9,000	" "	open top and bottom.
3,000	" "	open four sides.
4,000	" "	$x1\frac{1}{8}$ closed top.
5,000	" "	open top and bottom.
10,000	" "	$x1\frac{1}{8}$ open 4 sides.
20,000	" "	$x2$, cream, open top, new stock.
20,000	" "	cream, open four sides.

At the very low price named above, these are a bargain. This is especially true of the $1\frac{1}{2}$ -inch sections, which are about equal to our extra polished as now made. If any one can use or handle a quantity of this width we shall be pleased to hear from them.

PARSNIP SEED AT A BARGAIN.

Last fall we succeeded in getting a tremendous crop, and the seed is all from the Improved Guernsey, nice large roots; but either we have not the proper machinery or else we do not understand the business of cleaning the seed. There are no seeds of weeds nor any thing of that sort, but there are little bits of stems and branches of the parsnip itself that can not be got out in any way we know of except by expensive hand-picking. These bits of stem no not, of course, hurt it in the least for sowing, but they make it look untidy; therefore we offer it at the following exceedingly low prices: 1 lb., 20 cts.; 5 lbs., 75 cts.; 10 lbs., \$1.25. Just now parsnips are selling in our market for 5 cts. per lb. Those that were dug and placed in the cellar last fall might have been sold at about the same price all through February and March if we had had enough of them. If you can not sell them all, horses, cows, pigs, and even chickens, are very fond of them. The above prices are to hold only so long as our stock holds out. The quicker you get them into the ground the better, after the frost is out, for parsnips will make quite a

growth before many kinds of weeds get up, if you give them a chance.

PRIZETAKER ONION SETS.

We have several bushels of these which we can furnish at 10 cts. per pint; 15 cts. per quart; \$1.00 per peck; \$3.50 per bushel. If wanted by mail, add 10 cts. per quart extra. Large sizes, half above prices.

LATHYRIS SYLVESTRIS AND SACALINE.

We have seed of both of the above in 5-cent packets, and can furnish sacaline-plants by mail postpaid for 20 cts. each. Plants of Lathyrus sylvestris, or flat pea, 5 cts. each; 25 cts. for 10, or \$1.50 per 100—postpaid by mail at above prices.

SEED POTATOES.

At present writing all our second-size potatoes are sold out. I think I must have made the price pretty low—half price right through. Well, I wanted some plan by which we could get rid of all small and otherwise objectionable tubers, so that we could give out for first-class only nice-looking, good-sized ones. We have so far all kinds of the No. 1 size, but several kinds are *nearly* sold out.

SPRAY-PUMPS AT REDUCED PRICES.

The time for spraying fruit-trees is near at hand; and those not already provided with a good spraying-apparatus, if they have the trees, and expect to get any choice fruit, should not fail to secure in time the necessary spraying-outfit. It is being demonstrated more surely every year, that it is absolutely necessary to spray fruit-trees of all kinds one or more times in order to secure a stand of reasonably perfect fruit. There are pests which attack the foliage as well as those which destroy the fruit. For the latter you should not apply the poisonous spray till the petals of the blossoms have all fallen off. Then there is no danger of poisoning the bees as they gather the nectar from the blossoms. To spray before the petals fall is worse than useless.

We are late in getting out our list of spray pumps this year. We call your attention to our line in the advertising pages. We do not believe you will get better value for the money anywhere than in the line we offer. To dealers, and those who buy to sell again, we will make special low prices in quantities on application.



The adjoining cut shows a pump which we secured after our other line was made up. This is very much like the Myers bucket pump. The rubber hose, $\frac{1}{4}$ inch, is attached to the top of a brass tube running up through the center of the air-chamber. This reduces the capacity of the air-chamber. The pump is lighter, and we do not think quite as good as the Myers; but for the price at which we offer it, \$2.50, it is a bargain. It can be sent by mail, postpaid, for \$3.25. An eight-foot pipe extension, not available, will be included at 35c extra.

OXYDONOR AND D. L. MOODY.

On the second page of the Oxydonor pamphlet, the Oxydonor people make use of the name of D. L. Moody as follows:

Our manager, Capt. R. Kelso Carter, is well known all over this country, and in England, to many thousands of the best people, as a college professor, a scientific and religious writer, and a prominent evangelist in Christian work, and as a lecturer of great ability and magnetism. As to his character, ask such men as Rev. A. J. Gordon, of Boston; Dwight L. Moody, and Major Cole.

I at once wrote to Mr. Moody, forwarding a leaf from their circular, containing the above paragraph. I also inquired of him whether it could be possible that he knew that his name was being used to push a fraud. His reply below comes to hand just as we go to press:

I know nothing about this, and never indorsed it. Chicago, March 26. D. L. MOODY.

"Magnetism" indeed! It must be this sort of magnetism that prompts them to use a good man's name in this way without permission.



I am manufacturing

BEE-KEEPERS' SUPPLIES.

Every thing you need.

PRICES REDUCED.

Send for new Price List.

GEO. RALL, Frenchville, Wis.
Trempealeau Co.

Fruit and

Bee Ranch for Sale.

Address REV. L. J. TEMPLIN, Canon City, Col.

**Eggs for
Hatching**

From Prize = Winning Fowls.
50c and \$1.00 per 15.

Send for circular

AUGUST GOETZE & SON,
3822 Wood St., Wheeling, W. Va.

Patents Pending

On new process, new machines, new product, in manufacture of comb foundation.

Result:

Lowest prices, best work.
Samples and price list free.
Wax wanted.

W. J. Finch, Jr.,
Springfield, Ill.

LARGE yellow tested queens, delivered as the weather will permit, at 75c each, \$8.00 per dozen. Solid yellow breeders, \$1.50; young and profitable. Safe delivery. Money-order office, Decatur. Cleveland Bros., Stamper, Newton Co., Miss.

420 Lbs. Average

Is what my bees gave that I moved to the man-grove; those at home, 300 lbs. each; **5-banded bees, too.** Queens, bred for business from this stock, will be sent in 1895 for \$1.00 each until May; per doz., \$8.00. Circular free.

J. B. CASE, Port Orange, Fla.

Jas. M. Smith, Perkiomenville, Pa., breeder of 16 leading varieties of **Poultry.** Eggs, \$1.00 per 15. Catalog free.

**ITALIAN BEES
AND QUEENS.**

Ready in May. Queens \$1.00. Bees by the pound, \$1.00. One-frame nucleus with queen, \$2.00; two frames, \$2.50. Also Barred Plymouth Rock eggs for setting, \$1.00 per 15.

6-17ei

MRS. A. A. SIMPSON, SWARTS, PA.



SPRAY
YOUR
**FRUIT TREES
& VINES**

STAHL'S
Excelsior Spraying
Outfits kill insects,
prevent leaf blight
and wormy fruit. Insure
a heavy yield of all Fruit
and Vegetable crops.
Send 6 cts. for catalogue
and full treatise on spraying.
Circulars free. Address
WM. STAHL, Quincy, Ill.

Last year we commenced an elaborate plan of advertising, but before we were half through, OUR ADVERTISEMENTS DISAPPEARED. Why? Because we WERE OVERWHELMED WITH BUSINESS. There was but one thing to do: withdraw the advertising and devote every energy to filling the orders with which we were flooded. This we did, and handled with reasonable promptness a most unprecedented year's business.

WITH ENLARGED FACTORIES, INCREASED FACILITIES, AND TWENTY BRANCH HOUSES FROM WHICH TO DISPATCH OUR GOODS, WE CAN NOW CARE FOR ALL WHO COME. Last year we could not reduce prices because we were compelled in some way to limit the demand for Aermotor goods. We would have been satisfied with lower prices, but why create a demand which we could not supply? We have made the heaviest purchases of steel and material bought in America this year, and at unprecedented prices, and have made terms to dealers which enable them to make unprecedented prices.

In quality, character, variety, finish, and accessibility to full stock of goods and repairs, we are without competitors. In our plan of advertising last year, we proposed to furnish a feed cutter under certain conditions for \$15. For reasons stated above we did not complete the advertising, and the feed cutter is not put out. We now propose to make annuities in the following manner: We will announce in this paper our NEW ALL-STEEL VERY SUPERIOR FEED CUTTER, WORTH

\$40 at \$10

cash with order, f. o. b. Chicago. Only one to one person, he to furnish addresses of ten neighbors who ought to have something in our line. Cut, description and full information regarding it will appear soon.

We especially desire to caution you against paying excessive prices for windmills on the part of the dealer to overcharge the legitimate profit to the dealer. To be sure, the dealer will protect you, but we will protect you. We have been enabled to have special tools for each piece, and on it to merely to run down again. So small has become the cost of labor put sell that it is not worth come the largest dealers in the material, of course, he steel galvanized after coating (tilting and fixed), tanks, extent has this become true, the price of our goods (and of our business reputation) is so low that competition is impossible. **THEY DO IT BECAUSE THEY CAN BUY OF US CHEAPER THAN THEY CAN BUILD; BECAUSE WE ALONE ARE PREPARED TO GALVANIZE EVERYTHING AFTER IT IS COMPLETED, AND COMPLETE EVERYTHING EXACTLY RIGHT.**

These concerns are wise, for, even though we may not furnish the best of wheels, the wheel will have the best of supports. Send to us your name and address, and those of your neighbors who may need something in our line, and thereby do them a good turn. The Aermotor Co. is one of the most successful business enterprises which has been launched in recent times. In succeeding advertisements will be discussed and made clear the lines on which that success has been worked out. It was done by a farmer's boy. A careful following of these advertisements may suggest to some other farmer's boy a career.

Aermotor Co., 12th, Rockwell & Fillmore Sts., Chicago.

World's Fair Medal

Awarded my Foundation. Send for free samples. Dealers, write for wholesale prices. Root's new Polished Sections and other goods at his prices. Free Illustrated Price List of every thing needed in the apary. M. H. Hunt, Bell Branch, Mich.

Promptness is What Counts.

Honey-jars, Shipping-cases, and every thing that bee-keepers use. Root's Goods at Root's Prices, and the Best Shipping-point in the Country. Dealers in Honey and Beeswax. Catalog free.

WALTER S. POWDER, 162 Massachusetts Ave., Indianapolis, Ind.

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,

12tfdb Sole Manufacturers, Sprout Brook, Montgomery Co., N. Y.



WOVEN WIRE FENCE

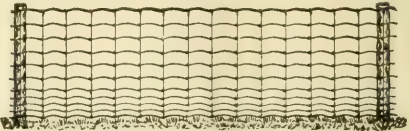
Horse high, bull strong,
pig and chicken tight.
Make it yourself for
13 to 20 a Rod
50 styles. A man and boy can make
40 to 60 rods a day. Catalog free.

KITSELMAN BROS., Ridgeville, Ind.

BEGINNERS.

Beginners should have a copy of the Amateur Bee keeper, a 70-page book by Prof. J. W. Rouse. Price 25 cents; if sent by mail, 25c. The little book and the Progressive Bee keeper (a live progressive 28-page monthly journal) one year, 65c. Address any first-class dealer, or

LEAHY MFG. CO., HIGGSVILLE, Mo.



FACTS FROM THE FACTORY.

The Page is the only elastic fence made, and requires special wire. Our contracts for the manufacture of this wire cover many thousands of tons, all guaranteed to suit the purpose. The Superintendents of the largest mills in the country have spent days at our factory studying our particular needs. This wire costs more than the common article, which could not be used if furnished free. Our complete fence costs the farmer less than he can buy the wire of which it is made and is the cheapest in the end.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

In responding to this advertisement mention GLEANINGS

TAKE NOTICE!

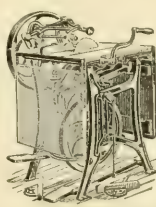
BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & LYON MFG. CO., 8tfdb New London, Wis.

HATCH CHICKENS BY STEAM

WITH THE MODEL EXCELSIOR INCUBATOR.

Thousands in Successful Operation.
SIMPLE, PERFECT, and SELF-REGULATING.
Guaranteed to hatch a larger percentage of fertile eggs, at less cost, than any other incubator.
Send 6c. for Illus. Catalog. Circulars Free.

Lowest priced First class Hatcher made.
GEO. H. STAHL, 114 to 122 S. 6th St. Quincy, Ill.

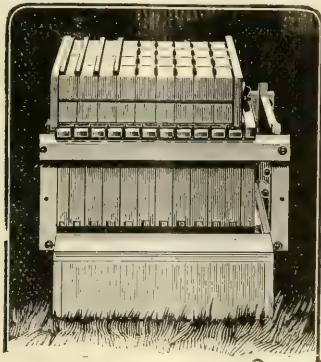


ONE MAN WITH THE UNION COMBINATION SAW Can do the work of four men using hand tools, in Ripping, Cutting off, Mitring, Rabbeting, Grooving, Gaining, Dadoing, Edging-up, Jointing Stuff, etc. Full Line of Foot and Hand Power Machinery. Sold on Trial. Catalog Free. 1-24ei
SENECA FALLS MFG. CO., 44 Water St., Seneca Falls, N. Y.

TRUSSES

on 30 Days Trial
Easy, durable and cheap. A radical cure effected. Send for sealed catalogue.
EGGLESTON TRUSS CO., Masonic Temple, Chicago, Ill.

THE Aspinwall Hive



THE HIVE FOR BEES.
THE HIVE FOR BEE-KEEPERS.

Aspinwall Manufacturing Co.,
Jackson, Mich.

(In responding to this advertisement mention GLEANINGS)

Notice!

We beg to announce that we have completed arrangements with the Porters whereby we secure for this country the control of the sale of that very excellent and almost indispensable implement,

The Porter Bee-Escape.

It will be manufactured by the Porters, as formerly, but write to us for prices in both large and small quantities.

The A. I. Root Co., Medina, O.

Bee-supplies Cheap! For prices write W. D. COOPER & SON, Box 565, Jackson, Mich.

BEE-KEEPERS' SUPPLIES FOR 1895.

Such as Dovetailed Hives, Sections, Comb Foundation, Extractors, and every thing else used by a bee-keeper. All late improved goods. Immense stock. Goods sold at wholesale and retail. Write for our

DISCOUNTS FOR EARLY ORDERS.

Alsike clover and Japanese buckwheat furnished at lowest market price.

Address **JOSEPH NYSEWANDER, Des Moines, Iowa.**

WE WILL PREPAY

Freight charges on orders for Root's polished sections, and 16-section white basswood shipping-cases, at his prices, to be shipped from factory to points within 300 miles, in lots of 1000 and 200 or over respectively. Send for catalog.

B. WALKER, Evart, Mich.

Tested Italian Queens.

I will offer for sale in April, tested Italian queens bred for business and gentleness. Leather-colored queens at 90 cts. each; 3 for \$2.50; 6 for \$4.50. Tested golden Italians, yellow to the tip, bred for business and beauty, easy to handle, \$1.00 each; 6 for \$5.00. Will have untested Italian queens ready to mail the 1st of May at 75 cts. each; 3 for \$2.00; 6 for \$4.00. Bred from the best 5-banded stock, free from disease.

W. A. COMPTON, Lynnville, Giles Co., Tenn.

Please mention this paper.

Promptness is What Counts.

Honey-jars, Shipping-cases, and every thing that bee-keepers use. Root's Goods at Root's Prices, and the Best Shipping-point in the Country. Dealers in Honey and Beeswax. Catalog free.

WALTER S. POWDER,
162 Massachusetts Ave., Indianapolis, Ind.



Patents Pending

On new process, new machines, new product, in manufacture of comb foundation.

Result:

Lowest prices, best work.
Samples and price list free.
Wax wanted.

W. J. Finch, Jr.,
Springfield, Ill.

Please mention this paper.

Fruit and Bee Ranch for Sale.

Address **REV. L. J. TEMPLIN, Canon City, Col.**

Queens. If you want bees that will stand the severest winters, and roll in the most honey in summer, send for price list.

F. B. YOCKEY, NORTH WASHINGTON, PA.

BURPEE'S FARM ANNUAL for 1895
"The Leading American Seed Catalogue."
A handsome book of 174 pages with many new features for 1895—hundreds of illustrations, pictures painted from nature—it tells all about the BEST SEEDS that grow, including rare novelties that cannot be had elsewhere. Any seed planter is welcome to a copy FREE. Send your address to-day on a postal.
W. ATLEE BURPEE & CO., Seed Growers, PHILADELPHIA.

In writing advertisers please mention this paper.

HONEY COLUMN

CITY MARKETS.

CHICAGO.—Honey.—We report our market well cleaned up on fancy white comb honey in 1-lb sections. A neat package and a fancy article would sell quickly at 14c. No. 2 comb, or dark, would not sell at over 10¢@11. We report better inquiry for extracted, at 5¢@7, depending on quality. Beeswax selling at 30c. S. T. FISH & CO.,
April 8. 189 South Water St., Chicago, Ill.

PHILADELPHIA.—Honey.—The supply of comb honey is getting low in this market, with considerable call; selling at 11¢@14, as to quality. Extracted honey in fair demand and good supply at 6¢@6½c. WM. A. SELSER,
April 9. 10 Vine St., Philadelphia, Pa.

BOSTON.—Honey.—Our market on No. 1 white comb honey is well cleaned up, and it is wanted. Prices for fancy 1-lb. white comb in cartons, 14¢@15c. E. E. BLAKE & CO.,
April 9. Boston, Mass.

KANSAS CITY.—Honey.—The stock of comb honey is large; market well supplied. Fancy white 1-lb. combs, 13¢; amber, 11¢. Receipts of extracted light; white, 7¢; amber, 5¢@6¢; Southern, 4¢@5¢. Beeswax, 22¢. HAMBLIN & BEARSS,
April 8. Kansas City, Mo.

KANSAS CITY.—Honey.—The supply of comb and extracted, fairly large. We quote No. 1 white 1-lb. comb, 14¢@15¢; No. 2, 12¢@13¢; No. 1 amber, 12¢@13¢; No. 2, 10¢@11¢; extracted, 5¢@7¢. Beeswax, 22¢@25¢. C. C. CLEMONS & CO.,
April 8. Kansas City, Mo.

BUFFALO.—Honey.—The honey market is cleaning up quite satisfactorily. Sales, however, are light. Fancy moderate at 13¢@14¢; choice, 11¢@12¢; commoner grades, ranging from 8¢@9¢; buckwheat very slow, and hard to sell at any satisfactory prices. BATTERSON & CO.,
April 9. Buffalo, N. Y.

DETROIT.—Honey.—Best white comb in light demand at 13¢@14¢; darker and inferior lots, 10¢@11¢. Extracted, 6¢@7¢, with few sales. Beeswax in better demand, and selling on sight at 29¢@30¢. M. H. HUNT,
April 8. Bell Branch, Mich.

CHICAGO.—Honey.—The market is well cleaned out at this writing, of all grades of comb honey excepting some lots of comb in cartons, which is not a popular way of marketing in this city. Best grades of comb sell at 14¢; dark, 8¢@10¢; yellow comb, 10¢@12¢. Extracted, 5¢@7¢, according to quality, flavor, and package. Beeswax chiefly at 30¢. R. A. BURNETT & CO.,
April 8. 163 So. Water St., Chicago, Ill.

CINCINNATI.—Honey.—There is a slow demand for all kinds of honey. We quote extracted honey at 4¢@7¢ on arrival. Comb honey, 12¢@16¢ in the jobbing way for best white. Dark honey is unsalable. Beeswax is scarce and in good demand at 25¢@28¢ for good to choice yellow. CHAS. F. MUTH & SON,
April 9. Cincinnati, O.

CLEVELAND.—Honey.—Our honey market is very slow at present. We quote No. 1 white, 1-lb. sections, 13c; No. 2, 11c. There is a better demand for extracted; No. 1, white, 7¢@8¢. Beeswax, 28¢@30¢. WILLIAMS BROS.,
April 8. 80 & 82 Broadway, Cleveland, O.

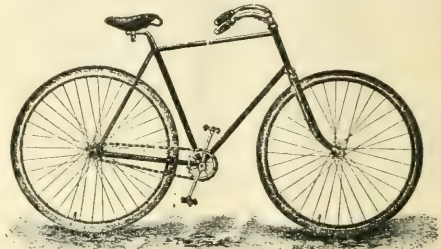
MILWAUKEE.—Honey.—This market for honey presents no new features since our last, and we are enjoying some trade both for comb and extracted. Our supply is fair, and the quality the very best. We quote finest 1-lb. sections, 15¢@16¢; good, 14¢@15¢; common, 12¢@13¢; mixed, 10¢@12¢. Extracted in barrels and kegs, white, 7¢@7½¢; dark, 6¢@6½¢; white in pails, 8¢@10¢. Beeswax wanted at 26¢@28¢. A. V. BISHOP & CO.,
April 8. Milwaukee, Wis.

ALBANY.—Honey.—Have received quite a number lots of comb honey during the past few days, and it has found a ready sale at a slight advance in price. We quote fancy white, 13c; mixed and buckwheat, 9¢@11¢. Extracted, 5¢@6½¢. CHAS. MCCULLOCH & CO.,
April 8. Albany, N. Y.

ALFALFA HONEY, very white, thick, and rich. Two 60-lb. cans at 7c. Same, partly from cloome (tinted), 6c. Samples, 8c. OLIVER FOSTER, Las Animas, Col.

BUFFALO, N. Y. Unsurpassed Honey Market. BATTERSON & CO. Responsible, Reliable, Commission Merchants. 18tfab and Prompt.

High=Grade Bicycles



ONLY \$60.00.

These are high-grade in every respect, both as to material and workmanship. We have personally tested them thoroughly, and know that they are first-class.

Tires, Morgan & Wright or Hartford single-tube pneumatic tires; wheels, 28-inch, wood rims; ball bearings throughout; pedals, rat-trap or rubber; handle-bars, raised or drop; frame of best quality of drawn seamless steel tubing; weight, 28 lbs. The entire bicycles are built by one of the largest bicycle works in the country. The extremely low price is owing to the fact that they are made on '94 machinery, and under another name-plate. We can furnish gentlemen's or Ladies' wheels at this price. Write for circular.

**THE A. I. ROOT COMPANY,
MEDINA, O.**

FOR SALE.—250 good Brood-combs.
JAS. P. GOODWIN, Danbury, Ia.

QUEENS BY RETURN MAIL.

Fine tested, yellow to the tips, 75c each, \$8.00 per doz. Solid yellow breeders, \$1.50. These are extra large and prolific, and are good from 3 to 5 years. Safe delivery. Money order office, Decatur.

CLEVELAND BROS., Stamper, Newton Co., Miss.

ITALIAN BEES Ready in May. Queens, \$1.00. Bees by the pound, \$1.00. One-frame nucleus with queen, \$2.00; two frames, \$2.50. Also Barred Plymouth Rock eggs for setting, \$1.00 per 15. 6-17el MRS. A. A. SIMPSON, SWARTS, PA.

Eggs From 8 leading varieties of fowls, including Imperial Pekin Ducks. Send for descriptive list to J. S. MASON, Medina, O.

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CONVENTION NOTICES.

The semi-annual meeting of the Southern Minnesota Bee-keepers' Association will be held on the first Monday in May, 1895, at La Crescent, Minn. All bee keepers are invited.
E. C. CORNWELL, Sec., Winona, Minn.

The spring meeting of the Northern Illinois Bee-keepers' Association will be held at the residence of H. W. Lee, in Pecatonica, Ill., May 21—one week later if it is a stormy day.
B. KENNEDY, Sec., New Milford, Ill.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must say you want your ad't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices of offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Old combs in frames. *Describe*, with price. W. L. COGGSHALL, West Groton, N. Y.

WANTED.—To exchange Universal wood-worker, one groover, one dovetailer, and one cutter-head table; also short jointer, all in good order. What have you to trade for one or all?
W. S. BELLWOS, Ladora, Ia.

WANTED.—To correspond with parties wishing to sell or test my new hive. F. DANZENBAKER, 1110 New York Ave., Washington, D. C.
Reference, GLEANINGS.

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange yellow Italian queens the coming season, also the best varieties of strawberry-plants, cheap, for foundation or offers.
MRS. OLIVER COLE, Sherburne, Chenango Co., N. Y.

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange Australian stamps for any other denominations. Send along from any part of the world, and I will return equivalent.
H. L. JONES, Goodna, Queensland, Australia.

WANTED.—To exchange 6 and 12 inch Root foundation mills for wax, honey, or offers.
I. J. STRINGHAM, 105 Park Place, New York, N. Y.

WANTED.—20 lbs. of bees and 10 tested queens in exchange for Gregg raspberry-seeds.
H. H. AULTFATHER, Minerva, O.

WANTED.—To exchange raspberry and blackberry plants, \$6 per 1000, bees \$5, Japanese buckwheat, for beeswax. A. P. LAWRENCE, Hickory Corners, Mich.

WANTED.—To exchange supplies and other goods for honey. O. H. HYATT, Shenandoah, Iowa, 20tf

WANTED.—To exchange pure-bred St. Bernard pups. My stock is of the best. Would like some fine queens, and nuclei and bees by the pound.
SCOTT BRILLHART, Millwood, Knox Co., Ohio.

WANTED.—To exchange 100 8-frame hives, with comb, smokers, bee-escapes, 10-inch foundation-mill, shipping-cases, a general outfit of Root's supplies, for offers. OSCAR KERNS, Cowgill, Mo.

WANTED.—To exchange bee-keeping supplies for full colonies of pure Italian bees, or two and three frame nuclei. Send me prices and get my annual price list. GEO. E. HILTON, Fremont, Mich.

WANTED.—To exchange safety bicycle, 28-inch pneumatic, bees, queens, B. P. Rock, L. C. B. Leghorn and L. Brahma eggs, for honey or bee-supplies. CHAS. H. THIES, Steeleville, Ill.

WANTED.—To exchange E-flat cornet, new, for bees, comb foundation, violin, or offers, at P. W. STAHLMAN, Ringgold, Pa.

WANTED.—Helper in bee-yard and orchard.
WALTER L. HAWLEY, Fort Collins, Col.

WANTED.—To exchange Buff Wyandotte eggs at \$1.50 per 13 for 5-banded golden Italian queens. A. G. GRIFFIN, Hadlyme, Ct.

WANTED.—Active young man to work in apiary. Give age, experience, wages wanted, references, etc. W. D. WRIGHT, Altamont, N. Y.

WANTED.—To exchange poultry and eggs (3 best kinds) for thin foundation, sections, shipping-cases, or new smokers. D. F. LASHIER, Hooper, Broome Co., N. Y.

Second-Hand Bicycles Cheap.



We have one ladies' Victoria, last year's model, made by the Overman Wheel Company, that has been used but little, and cost last year \$125.00, that we will sell for \$75. We also have one ladies' Monarch, last year's model, for \$60. Also one gent's second-hand Monarch, 30-in. wheels, in first-class running order. Price, \$50.00. Reason for selling cheap is to get new '95 mounts. Will take honey or wax in payment. Write what you have, sending samples, and we will give you further description of the wheels.

THE A. I. ROOT CO., Medina, Ohio.

Alley's Combined
Description and price list now ready.

HENRY ALLEY,
Wenham, Mass.

Please mention this paper.

Queen-Trap and Swarm-Catcher.

A Tested Queen Free!



Pure Italians. To every one buying 1½ doz. untested queens I will give a tested one free. Untested, 60c; tested, \$1.00; selected tested, \$1.50; breeders, \$3.00.

STEWART BROS., Sparta, Tenn.

Bees

In good new eight-frame L. hives, good full swarms, \$4.00. Three-frame nuclei with queens, \$2.25.
W. H. STANLEY,
Dixon, Lee Co., Ill.

1 COLONY ITALIAN BEES, in 10-frame Langstroth hive, \$4.50; 2 or more, \$4.00 each; tested Italian queen, \$1.00; 2 or more, 90c each. Adress
OTTO KLEINOW, 122 Military Ave., Detroit, Mich.

A lot of 5-Band Queens, reared last fall by C. D. Duvall; tested, \$1; selected, \$1.50. L. E. ROSEY, Worthington, W. Va.

In writing advertisers mention this paper.

HATCH CHICKENS BY STEAM
WITH THE MODEL
EXCELSIOR INCUBATOR.



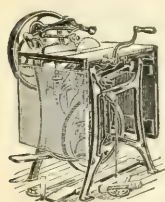
Thousands in Successful Operation.
SIMPLE, PERFECT, and SELF-REGULATING.
Guaranteed to hatch a larger percentage of fertile eggs, at less cost, than any other incubator.
Send 6c. for Illus. Catalog. Circulars Free.
Lowest priced First class Hatcher made.
GEO. H. STAHL, 114 to 122 S. 6th St. Quincy, Ill.

In responding to this advertisement mention GLEANINGS.

WOVEN WIRE FENCE



Horse high, bull strong, pig and chicken tight. Make it yourself for **13 to 20 cents a Rod.** 50 styles. A man and boy can make 40 to 60 rods a day. Catalog free.
KITSELMAN BROS., Ridgeville, Ind.



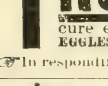
ONE MAN WITH THE UNION COMBINATION SAW

Can do the work of four men using hand tools, in Ripping, Cutting off, Mitering, Rabbeting, Grooving, Gaining, D-doing, Edging-up, Jointing, Stuff, etc. Full Line of Foot and Hand Power Machinery. Sold on Trial. Catalog Free. 1-24ci

SENECA FALLS MFC. CO., 44 Water St., Seneca Falls, N.Y.

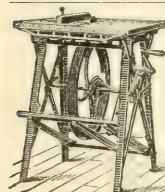
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TRUSSES on 30 Days Trial



Easy, durable and cheap. A radical cure effected. Send for sealed catalogue.
EGGLESTON TRUSS CO., Masonic Temple, Chicago, Ill.

In responding to this advertisement mention GLEANINGS.



Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 board frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of beehives, etc., to make, and we expect to do it all with this saw. It will do all you say it will."

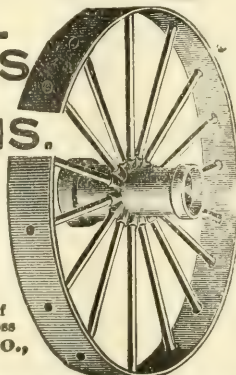
Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to

THE A. I. ROOT CO.

METAL WHEELS
for your
WAGONS.

Any size you want, 20 to 36 in high. Tires 1 to 8 in wide—hubs to fit any axle. Saves cost many times in a season to have set of low wheels to fit your wagon for hauling grain, fodder, manure, hogs, etc. No resetting of tires. Call free Address
EMPIRE MFG. CO., Quincy, Ill.



In responding to this advertisement mention GLEANINGS.

Books for Bee-Keepers and others.

Any of these books on which postage is not given will be forwarded by mail, postpaid, on receipt of price.
In buying books, as every thing else, we are liable to disappointment if we make a purchase without seeing the article. Admitting that the bookseller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. I very much desire that those who favor me with their patronage shall not be disappointed, and therefore I am going to try to prevent it by mentioning all the faults, so far as I can, that the purchaser may know what he is getting. In the following list, books that I approve I have marked with a *; those I especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines; ‡; foreign; §. The bee-books are all good.

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice, that you can judge of the size of the books very well by the amount required for postage on each.

8	Bible, good print, neatly bound.....	20
10	Bunyan's Pilgrim's Progress**.....	30
20	Illustrated Pilgrim's Progress**.....	75
This is a large book of 425 pages and 175 illustrations, and would usually be called a \$2.00 book. A splendid book to present to children. Sold in gilt edge for 50c more.		
6	First Steps for Little Feet. By the author of the Story of the Bible. A better book for young children can not be found in the whole round of literature, and at the same time there can hardly be found a more attractive book. Beautifully bound, and fully illustrated. Price 50 c. Two copies will be sold for 75 cents. Postage six cents each.	
5	Harmony of the Gospels.....	35
3	John Ploughman's Talks and Pictures, by Rev. C. H. Spurgeon*.....	10
1	Gospel Hymns, consolidated Nos. 1, 2, 3, and 4, words only, cloth, 10 c; paper.....	05
2	Same, board covers.....	20
5	Same, words and music, small type, board covers.....	45
10	Same, words and music, board covers.....	75
3	New Testament in pretty flexible covers... ..	05
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A large book of 700 pages, and 274 illustrations. Will be read by almost every child.		
5	The Christian's Secret of a Happy Life**....	25
8	Same in cloth binding.....	50
	The Life of Trust, by Geo. Muller**.....	1 25
1	Ten Nights in a Bar-Room, T. S. Arthur**....	05
5	Tobacco Manual**.....	45

This is a nice book that will be sure to be read, if left around where the boys get hold of it, and any boy that reads it will be pretty safe from the tobacco habit.

BOOKS ESPECIALLY FOR BEE-KEEPERS.

Postage		Price without postage
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5	A Year Among the Bees, by C. C. Miller....	45
	Advanced Bee Culture, by W. Z. Hutchinson..	50
3	Amateur Bee-keeper, by J. W. Rouse.....	22
14	Bees and Bee-keeping, by Frank Cheshire, England, Vol. I.§.....	2 36
21	Same, Vol. II.§.....	2 79
or, \$5.25 for the two, postpaid.		
10	Bees and Honey, by T. G. Newman.....	90
10	Cook's New Manual. Cloth.....	1 15
5	Doolittle on Queen-Rearing.....	95
2	Dzierzon Theory.....	10
3	Foul Brood; Its Natural History and Rational Treatment.....	22
1	Honey as Food and Medicine.....	05
15	Langstroth Revised by Ch. Dadant & Son... ..	1 25
10	Quinby's New Bee-Keeping.....	1 40
4	Thirty Years Among the Bees, by H. Alley	50
	Success in Bee Culture, by James Heddon	46
	Handling Bees, by Langstroth. Revised by Dadant.....	08
	Bee-keeping for Profit, by Dr. G. L. Tinker	25
5	The Honey Bee, by Thos. William Cowan... ..	95
	British Bee-keeper's Guide Book, by Thos. William Cowan, England§.....	40
3	Merrybanks and His Neighbor, by A. I. Root	15
4	Winter Problem in Bee-keeping, by Pierce	46

MISCELLANEOUS HAND-BOOKS.

5	An Egg-Farm, Stoddard**.....	45
	Amateur Photographer's Hand-book**.....	70
3	A B C of Potato Culture, Terry**.....	35
This is T. B. Terry's first and most masterly work. The book has had an enormous sale, and has been reprinted in foreign languages. When we are thoroughly conversant with friend Terry's system of raising potatoes, we shall be ready to handle almost any farm crop successfully. It has 48 pages and 22 illustrations.		

- 5 | A B C of Carp Culture, by Geo. Finley..... 35
 5 | A B C of Strawberry Culture**By T. B. Terry 35
 Probably the leading book of the world on strawberries.
 Barn Plans and Out-Buildings*..... 1 50
 Canary Birds. Paper..... 50
 2 | Celery for Profit, by T. Greiner*..... 25
 The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once, without any assistance except from the book.
 8 | Domestic Economy, by I. H. Mayer, M. D.* 60
 This book ought to save at least the money it costs, each year, in every household. It was written by a doctor, and one who has made the matter of domestic economy a life-study. The regular price of the book is \$1.00; but by taking a large lot of them we are enabled to make the price only 60 cts.
 Draining for Profit and Health, Warring..... 1 50
 10 | Fuller's Grape Culturist**..... 1 40
 Farming For Boys*..... 75
 This is one of Joseph Harris' happiest productions, and it seems to me that it ought to make farm-life fascinating to any boy who has any sort of taste for gardening.
 7 | Farm, Gardening, and Seed-Growing**..... 90
 This is by Francis Brill, the veteran seed-grower, and is the only book on gardening that I am aware of that tells how market-gardeners and seed-growers raise and harvest their crops. It has 166 pages.
 12 | Gardening for Pleasure, Henderson*..... 1 85
 While "Gardening for Profit" is written with a view of making gardening PAY, it touches a good deal on the pleasure part; and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 404 pages and 203 illustrations.
 12 | Gardening for Profit..... 1 85
 The latest revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward making market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts.
 Gardening for Young and Old, Harris**..... 1 25
 This is Joseph Harris' best and happiest effort. Although it goes over the same ground, occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing the ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.
 10 | Garden and Farm Topics, Henderson*..... 75
 Gray's School and Field Book of Botany..... 1 80
 5 | Gregory on Cabbages; paper*..... 25
 5 | Gregory on Squashes; paper*..... 25
 5 | Gregory on Onions; paper*..... 25
 The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.
 10 | Greenhouse Construction**..... 1 40
 This book, by Prof. Taft, is just out, and is as full and complete as regard to the subject of greenhouse construction. The next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.
 15 | How to Make the Garden Pay**..... 1 35
 By T. Greiner. This is a new book, just out, and it gives the most full directions of actually making money out of any book in the world. Those who are interested in hot-beds, cold-frames, cold-greenhouses, hot-houses or glass structures of any kind for the growth of plants, can not afford to be without the book.
 Handbook for Lumbermen..... 10
 10 | Household Conveniences..... 1 40
 2 | How to Propagate and Grow Fruit, Green* 15
 2 | Injurious Insects, Cook..... 25
 10 | Irrigation for the Farm, Garden, and Orchard, Stewart*..... 1 40
 This book, so far as I am informed, is almost the only work on this subject that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills, to take the place of rain, during our great droughts, is the great problem before us at the present day. The book has 274 pages and 142 cuts.
 5 | Manures; How to Make and How to Use them; in paper covers..... 45
 6 | The same in cloth covers..... 65
 Covering the whole matter, and discussing in detail to be found on the farm, refuse from factories, mineral fertilizers from mines, etc. It is a complete summing-up of the whole matter. It is written by F. W. Semper.
 7 | Market-gardening and Farm Notes, by Burnett Landreth..... 90
 The Landreths are the pioneer seedsmen of America; and the book is worth fully as much as we might expect it to be. I think from the fact that it was the price, before it had been in my hands fifteen minutes. It is exceedingly practical, and tells what has been done and what is BEING done, more than it discourses on theory.
 3 | Maple Sugar and the Sugar-bush**..... 35
 By Prof. A. J. Cook. This was written in the spring of 1887 at my request. As the author has, perhaps, the largest maple-sugar-camps in the United States, as well as being an enthusiastic lover of all farm industries, he is better fitted, perhaps, to handle the subject than any other man. The book is written

in Prof. Cook's happy style combining wholesome moral lessons with the latest and best method of managing to get the finest syrup and maple sugar, with the least possible expenditure of cash and labor. Everybody who makes sugar or molasses wants the sugar-book. It has 42 pages and 35 cuts.

Our Farming, by T. B. Terry**..... \$2.00
 In which he tells "how we have made a run-down farm bring both profit and pleasure."

This is a large book, 6x9 inches, 367 pages, quite fully illustrated. It is Terry's first large book; and while it touches on the topics treated in his smaller handbooks, it is sufficiently different so that no one will complain of repetition, even if he has read all of Terry's little books. I should call it the brightest and most practical book on farming before the world at the present day. The price is \$2.00 postpaid; or, clubbed with GLEANINGS for \$2.50. Those who are already subscribers to GLEANINGS may have it postpaid by sending us 1.50 more. We are so sure it will be worth many times its cost that we are not afraid to offer to take it back if any one feels he has not got his money's worth after he has read it. If ordered by express or freight with other goods, free less.

3 | Onions for Profit**..... 45
 Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with all the enthusiasm and interest that characterizes its author, T. Greiner. Even if one is not particularly interested in the business, almost any person who picks up Greiner's books will like to read them through.

1 | Poultry for Pleasure and Profit**..... 10
 11 | Practical Floriculture, Henderson*..... 1 35
 10 | Profits in Poultry*..... 90
 2 | Practical Turkey-raising..... 10
 By Fanny Field. This is a 35-cent book which we offer for 10 cts.; postage, 2 cts.

4 | Peabody's Webster's Dictionary..... 10
 Over 30,000 words and 250 illustrations.

2 | Rats: How to Rid Farms and Buildings of them, as well as other Pests of like Character..... 15

This little book ought to be worth dollars instead of the few cents it costs to any one who has ever been troubled with these pests, and who does not. It is written in such a happy vein that every member of the family will read it clear through, just about as soon as they get hold of it. It contains a complete summing up of the best information the world can furnish.

1 | Silk and the Silkworm..... 10
 10 | Small-Fruit Culturist, Fuller..... 1 40
 10 | Success in Market-Gardening*..... 90
 This is a new book by a real, live, enterprising, successful market-gardener who lives in Arlington, Mass., of Boston, Mass. Friend Rawson has been one of the foremost to make irrigation a practical success, and he now irrigates his grounds by means of a windmill and steam-engine whenever a drought threatens to injure the crops. The book has 208 pages, and is nicely illustrated with 110 engravings.

10 | Ten Acres Enough..... 1 00
 Talks on Manures*..... 1 75

This book, by Joseph Harris is, perhaps, the most comprehensive one we have on the subject, and the whole matter is considered by an able writer. It contains 366 pages.

2 | The Carpenter's Steel Square and its Uses..... 15
 10 | The New Agriculture; or, the Waters Led Captive..... 75
 2 | Treatise on the Horse and his Diseases..... 10
 5 | Tile Drainage, by W. I. Chamberlain..... 35
 Fully illustrated, containing every thing of importance clear up to the present date.

The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth while. It costs, to every one who has occasion to lay ten rods or more of tile. There is as much science as in doing almost anything else; and by following the plan directed in this book, one man will often do as much as two men without this knowledge. The book embraces every thing connected with the subject, and was written by the author while he was engaged in the work of digging the ditches and laying the tiles HIMSELF, for he has laid literally miles of tile on his own farm in Hudson, O.

5 | Tomato Culture..... 35
 In three parts. Part first—by J. W. Day, of Crystal Springs, Miss., treats of tomato culture in the South, with some remarks by A. I. Root, adapting it to the North. Part second—By D. C. Corbin, of Connecticut, treats of tomato culture especially for canning factories. Part third—By A. I. Root, treats of plant-growing for market, and high-pressure gardening in general. This little book is interesting because it is one of the first rural books to come from our friends in the South. It tells of a great new industry that has been steadily growing for some years past; namely, tomato-growing, the South to supply the Northern markets. The little book, which is fully illustrated, gives us some pleasant glimpses of the possibilities and probabilities of the future of Southern agriculture. Even though you do not grow tomatoes to any considerable extent, you will find the book brimful of suggestions and short cuts in agriculture and horticulture, and especially in the line of market-gardening.

3 | Winter Care of Horses and Cattle..... 35
 This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in the book. It has 44 pages and 4 cuts.

3 | Wood's Common Objects of the Microscope**..... 47
 8 | What to Do and How to be Happy While Doing It, by A. I. Root..... 50

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TESTED QUEENS

Are usually sold for \$2.00. I will explain why I wish to sell a few at less than that. As most of my readers know, I require my apiary each spring with young queens from the South. This is done to do away with swarming. If done early enough it is usually successful. It will be seen that the queens displaced by these young queens are never more than a year old; in fact, they are fine, tested, Italian queens, RIGHT IN THEIR PRIME; yet, in order that they may move off quickly, and thus make room for the untested queens, they will be sold for only **ONE DOLLAR**. Or I will send the REVIEW for 1895 and one of these queens for only \$1.75. For \$2.00 I will send the REVIEW, the queen, and the book "Advanced Bee Culture." If any prefer the young, laying queens from the South, they can have them instead of the tested queens, at the same price. A discount on large orders for untested queens. Say how many are wanted, and a price will be made. Orders can be filled as soon as it is warm enough to handle bees and ship queens with safety.

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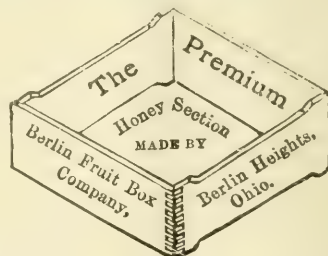
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Vol. XXIII.

APR. 15, 1895.

No. 8.

STRAY STRAWS FROM DR. C. C. MILLER.

FIVE CENTS is enough to invest in sacaline till more is known about it.

SLICED ONIONS are given to bees 24 hours before uniting, by Wm. Stolley.—*A. B. J.*

F. L. THOMPSON has been doing some good work culling from foreign journals for *Review*.

GLEANINGS is troubled to know what's done with so much sweet clover. M. M. Baldrige says some of it is used for tanning.

CHAFF HIVES are the things for East Tennessee, with its ever-changing warm and cold spells in winter, according to Adrian Getaz in *A. B. J.*

A CRUSADE ought to be started against respectable papers—at least respectable in other respects—for advertising such frauds as Electropoise.

THAT MAN BOARDMAN must be squelched. He's trying to break in on established traditions and customs, getting us to hanker after old straw skeps and square frames.

I'M GLAD the big-little-hive discussion is not to be closed yet. Not that a positive decision is sure to be reached, but incidentally the discussion brings out points of value.

THE WISCONSIN CONVENTION seemed to think the "expert and careful bee-keeper" could get along without separators. Don't you think he'd get along just a *little* better with them?

MRS. EDITH MILLER is the name that stands at the mast-head as editor of the new paper, *The Kansas Bee Journal*. If Mrs. Edith is a genuine live bee-woman, that paper ought to succeed.

BROOD-SPREADING seems to be taking a back seat. Of 23 repliers in *A. B. J.*, only one indorses it unqualifiedly. Doolittle and a few others use it less than formerly, and the majority will none of it.

LARGE-HIVE advocates are appearing in *A. B. J.* Adrian Getaz says, "Eight hives of thir-

teen frames each will probably give more surplus, and certainly as much, as thirteen hives of eight frames each."

DO BEES WORK on strawberry-blossoms? Abbott says, in *A. B. J.*, that Secor's wrong in thinking they don't. I don't remember ever seeing them at it, and I've had strawberries by the acre; but that isn't proof positive.

"I PLACED in a long trough, in separate piles, wheat flour, wheat Graham, rye flour, rye Graham, ground oats, oat-meal, buckwheat flour, and corn meal, and found the bees would hardly touch any thing else till the cornmeal was all gone."—O. K. Omstead, in *A. B. J.*

"NO DANGER of the swarm absconding or doubling up with others as long as you trap all the queens," says C. H. Dibbern, p. 258. But I'm sorry to say swarms sometimes return to the wrong hive, which is the same as doubling up.

THE *Australian Bee Bulletin* says, at the last of January, "Swarming may now be said to be practically over." I should think so! That accounts for the big crops they get there. We could get big crops too if we would work the poor bees right through the winter.

THE PAST WINTER has been a terror across the sea. In England the mercury went down to 8° below zero; and one man says in *B. B. J.*, "If a recurrence of this extreme weather takes place, we should make some experiments on the American plan of cellar wintering."

ALFALFA IN WISCONSIN. A report of a third of an acre is given by S. Favil, in *Prairie Farmer*. First year it didn't show much; second year gave two good cuttings, and four cuttings the third year. Flourishes in drouth that checks red clover, and doesn't need re-seeding.

FOUNDATION made of two-thirds ceresin, we are told on p. 272, is sold in Germany *for what it is*. I'm afraid there's some mistake about that. There's much complaint in the German journals about adulteration, but I never saw a word in favor of the mixed article, nor any of it offered for sale.

CLOVER SEED. Waldo F. Brown says, in *Prairie Farmer*, "In my experience the mammoth clover will in good seasons average about

one bushel of seed more to the acre than the medium; and from reports at institutes the past winter, the alsike will give nearly double the yield of the red clover.

ADULTERATED HONEY from America, according to one writer in *Centralblatt*, floods the German markets to the extent of 5,500,000 pounds. On another page of the same journal, H. Guehler, the C. F. Muth of Berlin, asserts that there is probably very little adulterated American honey, what is adulterated being generally done by Germans in Germany.

HASTY says in *Review* that he believes the leading thinkers no longer hold to the old theory that the queen at impregnation receives into her spermatheca a supply of spermatozoa that lasts for life. Don't you be fooled by noise, Hasty. That battle is being mostly fought in Germany, and the bulk of the leading thinkers hold to the old theory.

CATCHING SWARMS. Here's how it's done in Florida. A box 14x8x4 inches placed on the end of a long pole, placing in it a queen with a handful of bees and hanging it out every day during the swarming season. Clipping the queens' wings throughout the apiary, the bees in coming out to swarm will cluster around this box, sometimes 7 or 8 swarms together, and are hived as one swarm.—A. B. J.

BEE PARALYSIS. Joshua Bull, in *Review*, says he failed to cure a very bad case with salt brine, then made a success in this way: "I took a large spoonful of salt, and dissolved it in a little water, just enough to get the salt all dissolved, and mixed this with a gallon of honey and fed it to them just as fast as I could get them to take it." That cured for good. Now the question is, whether it will work the same with a bad case down south.



THE LANGSTROTH VS. THE CUBICAL HIVE.

THE QUESTION CAREFULLY CONSIDERED BY AN
ADVOCATE OF THE LATTER; A VALUABLE
AND READABLE ARTICLE.

By H. R. Boardman.

The lifting and carrying of hives in and about the bee-yard in the hot and busy part of the season, when the hives are stored with honey, is certainly an important item of the hardest, most trying work of the apiary. Then the carrying in and out of winter quarters, where bees are wintered indoors, all suggests, in a forcible manner, the convenience of hives for such manipulation.

The square hive is most perfectly adapted to this purpose. I could suggest no improvement in that respect. When lifted by the cleats it

makes a well-balanced load, and is easily carried. In this respect the least that can be said of the long hive is that its construction suggests little thought of convenience.

I have seen two men tugging away at a Simplicity hive, to carry it into winter quarters, when either of them would be able to pick up a square hive of the same weight, and carry it in quicker and easier.

In these times of sharp competition and short honey crops it is the sum total of these little items that sometimes tips the balance toward the side of success or failure in bee-keeping. It is only along the lines of strictest economy that we can now hope for success.

The queen insists on a round, compact brood-nest, when unrestricted. In carrying out this natural instinct in the long shallow hive, the brood nest is necessarily carried into the surplus-chamber. In order to correct this fault (?) perforated-zinc queen-excluders and other expensive devices are used to keep the queen out of the surplus-chamber. The trade in perforated zinc for this purpose has become an important item. That this is wholly a fault of the hive, it is only necessary to say that, with the square hive, this fault does not appear. The queen never goes into the sections unless by some mistake or awkwardness of management. The brood-chamber furnishes just the natural requirements for a brood-nest.

A few years ago I was one day in the apiary of a friend who used the Simplicity hive. He had been at work taking off sections. "My bees are very cross," said he. "I am having a disagreeable muss. The frames in my hives, in the upper and lower stories, are built solid together; and when I lift off the section-chamber it pulls up the brood-combs from the lower hive. I am getting a little disgusted with the way it works. How do you manage this trouble?"

"I never had any such experience," said I. "Let me see your hives."

We lifted the cover from a hive that had just had the sections removed. I did not wonder that my friend had become disgusted. There was enough to disgust any order-loving bee-keeper. The long top-bars had sagged until the bee-space over some of them was at least an inch, others were less, while some were nearly straight. All of these spaces, of course, had been filled with irregular masses of comb and propolis, and were stored with honey.

"I do not need to tell you that all this trouble is the fault of your hive. Look at those thin top-bars. Their strength is out of all proportion to their length, and the weight they have to support. I think the remedy for this trouble is a properly constructed hive."

"I guess you are nearly right," said he, "and if this accumulation of old traps were all off my hands I would improve upon your suggestion as well as my own past experience, and

I will assure you that I would make some very radical changes in starting again.

To mend these faults, honey-boards of various kinds have been introduced. The bracing and strengthening of the frames in various ways to prevent sagging was resorted to, and finally the thick top-bar came to cure a multitude of evils. It certainly is gratifying to note that this improvement is at least a safer extreme than the other.

It is claimed, as a valuable feature of the long hive, that it furnishes a large amount of surplus room close to the brood-nest. I think it remains to be shown that this is a valuable feature; that there is any advantage in such an arrangement. I am quite sure that this is also a mistaken economy.



CLUSTERS IN SQUARE AND LONG HIVE.

A considerable degree of heat is necessary in order to carry on comb-building. How to conserve and economize this heat in the surplus-chamber to the best advantage is an important question; and especially when the nights are cool, it sometimes becomes difficult and perplexing. The best and most satisfactory work in the sections can always be obtained directly over the brood-nest, and in a central compact form tiered up to the capacity desired. Being placed directly over the heat-center, it best conserves and economizes the accumulated heat from the brood-nest within; and, being in a rather compact form, protects from needless surface exposure without. In the square hive the sections are thus tiered up in a compact form over a compact brood-nest. Now if, instead of being thus tiered up, these sections

were disposed in one tier to adjust them to the long hive, so that a greater number would come next to the top of the brood-combs, would it need much argument to demonstrate that we have spread out, or dispersed, the heat over more surface, and at the same time placed a part of the sections farther from the heat-center? We have also increased the outside surface exposure to a considerable extent. I am quite sure that the second or third tier of sections on the square hive is in a more favorable position for good work than are the outside sections on the long hive. What is the testimony of the bees themselves? Have your bees got nicely at work in the sections? Go out into the yard and examine a few cases, and see where they commence their work and how they

continue it. This is what I think you will find, if you have the long hive: Work beginning centrally in the cases, and extending toward the outside, finishing in the central part, may be, before work is much advanced in the extreme outside. If a second case is on, work begun centrally, and well advanced, before the outside of the lower tier is finished—if you do find this, it will, no doubt, suggest to you that the central portion is the preferred part of the case for work.

There is one argument yet unanswered, that stands upon the side of the long hive. It is one which presents a barrier more potent for opposition in the human mind than all the other arguments that reason can array. It is popular; it is in general use. The beginner inquires, "What hive shall I use?" He is recommended the one in general use, and the question is settled. Any other hive would have been as readily accepted. By far the larger part of the trade in hives has been, and is now, with a class of

bee-keepers who know nothing at all of the requirements of a bee-hive. Having once adopted any style of hive, it is by no means an easy matter to make a change to some other kind, nor is it advisable to do so without some very good reasons. Every bee-keeper knows how important it is to start right; but the question after all is, how to be sure we are getting that right start.

A tight or fixed bottom to a bee-hive is a feature that I have never been able to appreciate. Its economy or use I have never been able to comprehend. A great deal of my valuable manipulation of hives depends upon the open bottom. The tiering-up feature, perhaps, is the most important, but is not all, by any means. Examination from the bottom, without opening the hive, has for me some decided advantages.

In the spring I wish to keep in touch with my bees, and know at all times their exact condition. To examine them I pass rapidly along on the back side of the hives, weighing each one with delicate scales which I have in the ends of my fingers, and at the same time I tip the hive up and count the spaces between the combs in which there are bees. I have learned to do this work very rapidly; 30 minutes is sufficient time to go over 150 colonies. When I wished to examine the combs briefly, to locate the queenless colonies that may be in the yard, or for any other purpose, I tip the hives in such a manner that the sun will shine straight in at the bottom. With a few puffs of smoke I drive the bees from between the combs to be examined; then by pulling them slightly apart I have a good view clear to the top of the hive. This has the advantage of being quick and easy, and can be carried on at any time without attracting robbers; and in early spring you can take a look at the brood-nest without exposing it to the cold. The open-bottom hive is, in my mind, intimately connected with the solution of the winter problem. My hives have been carried in and out of winter quarters for years, without bottoms; others report that they are not able to make it a success. I was puzzled at first, and thought it was because they did not know how; but I suspect it is the exposure of the large open bottom of the long hive that causes disturbance of the bees. Now, may be this is also the key to the origin of this feature.

East Townsend, Ohio.

[You say there is one argument yet unanswered that stands upon the side of the long hive. Aye, there's the rub. It is the standard. It is adopted in the United States and Canada, in many of the islands of the sea, in New Zealand, and also in Australia. We may admit all your arguments in favor of the cubical hive; but what are we going to do about it? The situation, it seems to me, finds a partial parallel in this: Our present system of spelling is outrageous. All schoolchildren have to waste years over something that might be much better spent upon some other department of learning. Printers have to waste tons and tons of type for useless silent letters; and they have to waste years of time in setting them up and in throwing them down again. Pressmen have to waste press room, to say nothing of valuable space on the pages of our books and journals, and all for what reason? Because we are helpless, and can not change. Our books for centuries have been printed so as to accord essentially with our present methods of spelling.

The Langstroth system is adopted throughout the United States and a large part of the world; but, unlike the spelling of our language, it is not outrageous. By many it is considered unique. We have for years made our hives so that the earliest frames we ever made will fit the hives of our present manufacture, and *vice versa*.

There is one point that it seems to me you have not considered in speaking of the advantages of the cubical hive. It requires wider lumber, or else boards of one or more pieces matched together, because the hive is tall or deep; and the fewer cracks we can have in the side of a bee-hive, the better. The long hive

takes narrow barn-boards—lumber comparatively cheap in price; and a side or end of such a hive can be made of a whole board. It is true, *your* hive may be; but when you go beyond ten or twelve inches with the boards, you have got to pay more than *pro rata* price for the extra width. It appears, therefore, that the Langstroth hive is the cheaper of the two; and it is, therefore, cheaper to the bee-keeper.

There is one other point that has not, perhaps, been considered, and that is this: Bee-keepers who use the long hive seem to produce as much honey as those who use the cubical; at least, in all my readings (and I am forced necessarily to read a good deal on the subject of bees, both published and unpublished manuscript) I have never run across a case that I remember, where the square or cubical hive had the advantage in *net results* of comb or extracted honey produced.

There was a time when we had deep hives; and the experience of my father as well as my own seemed to be that the Langstroth frame was more easily manipulated and withdrawn from the hive. In your case you overcome the disadvantage somewhat by the use of the side-opening hive; but these are used but little, comparatively, if I am correct; and, besides, it is not possible to make such a hive as tight as one that has permanent sides and ends all around.

As to your last sentence, about the bees flying out from the bottom of the shallow hive, preparatory to putting them into the cellar, I believe you are entirely correct. I came to that conclusion myself after seeing you handle your hives, and trying the same in our own Langstroth.

It is not my purpose to make an attempt to overthrow your arguments, but only to give our readers an opportunity to see the question on both sides. You have fairly presented many of the arguments in favor of the long hive, and I only wished to add a few more that perhaps you have overlooked.—Ed.]

MANUM IN THE APIARY.

EARLY SPRING MANAGEMENT OF BEES; HOW TO LOOK OVER COLONIES WITHOUT WASTING TIME UNNECESSARILY, OR EXPOSING BEES TO COLD AIR.

By A. E. Manum.

"Good-morning, Leslie. Are you out taking a sun-bath this fine morning?"

"I have come over to get a setting of eggs. I want to try your new breed of fowls."

"Well, just go into the house, and my wife will put them up for you. I want to show this man where to put his horse."

"Manum, who is that chap?"

"His name is Abe Jones. He came here last week to see if I would allow him to work with me one day each week, during the bee season, and show him what I could in the management of bees, as I now manage them, and I consented to do so. He has a few bees."

"Well, that is a new kink in the business. It's a grand chance for him. He can care for his own bees, and at the same time take lessons of you. Does he pay you any thing for it?"

"Yes, he pays for his dinner, and for hay for his horse; in other words, he offered me \$10.00 for the season."

"Well, Mr. Jones, I suppose you are here for business; so we will get our smokers and go for the bees."

"Yes, Manum, I want you to put me through while I am here. I am not afraid of bees or work."

"Now, Jones, it is early in the season; and I want to say to you *now* that a colony of bees must not be kept long exposed to the cold air. We simply need to open the hives, and quickly look in to see if we can assist the bees in any way. In the first place, we will go through the yard, and open all the entrances to their full size by pulling out the slides. It being a warm spring day, and bees are flying nicely, this will give them a chance to clean house; and when we get through work, we will return the slides, because they require but a small entrance through April and the first half of May."

"Won't there a great many bees get lost or die on the snow?"

"No doubt a few of the old bees will never return to their hive; but that we can not help; however, it is so warm to-day there will be but few lost. If there were much wind, or if the air were chilly, I would not open a hive. You would, therefore, lose your journey this time."

"We will open this hive, No. 1, and take them by course. First, raise the cap very carefully, so as not to disturb the bees. Now remove the cushion, and next the ventilator and honey-board. I puff a little smoke to drive the bees down. It seems too bad, they are so very quiet. There—you can see now; they have a plenty of sealed honey; another puff of smoke, and now we see a small patch of capped brood. This colony is all right. They have a laying queen, plenty of honey, and are strong in bees. Now, Jones, as you were timing me, how long did I have this colony exposed?"

"I am surprised when I tell you that the hive was open only 41 seconds. Now, it would have taken me at least five minutes to satisfy myself of the condition of the colony; and if I learn no more to-day, I shall feel well paid for this day."

"Here we are to the 23d hive, and all have so far been nearly alike as to condition; but here we have a change. This colony is light, and short of honey. I will cover the bees at once with the cushion, and go to the honey-room for a comb of honey. I break the cappings, that the bees may get at the honey more readily. Now I will place it near the cluster, so the bees will have it near by, where they can keep it warm. I must take out a comb here from the cluster, to see if there are any eggs, as I see no capped brood. Yes, there are eggs; they are all right. Now I will cover them with this old meal-bag, and over it put the honey-board and cushion. This is to keep them as warm as possible. If I can keep them along until May, I can then assist them with brood and young bees from a strong colony."

"Why not give them brood now, and have the benefit of it sooner?"

"Because they are not strong enough to properly care for it; and, furthermore, it would be bad policy to take brood from any colony this early in the season. It would damage a strong colony more than it would help a light one. In fact, it would be no great help to the light one; better by far leave the brood in the strong colony to hatch, and then give the light one a few of the young hatched bees. You must remember that it is only the first week in April, and we are liable to have several days of winter weather yet. My experience teaches me that, the less I do with the bees thus early, the better for them. Here is No. 28, with a mouse-nest in it, and two of the outside combs badly mutilated. Close the entrance at once: I will try to kill the mice with this new ventilator. Here is a new use for my ventilator. It is just the thing to punch the mice with. There! there! and there! I guess, that is all there are—three of them. Now I will remove the nest, and put in two combs partly filled with honey, as I see this colony has not an overabundance, and they are quite strong in bees."

"Oh, my! this 29th colony is dead."

"No, there are a few bees away down in that corner. I will remove a comb and examine. There is the queen—a nice one too. I will set the comb back, cover the hive, and get a partially filled section. I usually save out a few for this purpose. There! this section, you see, has wood sides, making a box of it. I'll now put 40 or 50 bees with the queen into this box, and break up the colony entirely. I can in this way keep the queen several days by keeping the box in a warm room in the house. Now, when I come to look over the remainder of my bees, which I hope to do this week, I may find a queenless colony. If I should, this queen will come handy. Next week, the work will be a little different. Be sure to choose a still, warm day, or you may lose your journey."

Bristol, Vt.

[I take it from the foregoing that Mr. Manum is going to give us a series of practical articles especially designed for beginners, so that not only Abe Jones, but a large number of Abe Joneses, will have the benefit of tutor Manum's instruction. As Mr. Manum makes his bees pay, I have no doubt that many of the veterans can glean here and there a fact worth much to them. Yes, Mr. M., I hope you will give us a full report of your instructions to Abe, and give him a hearty hand shake for me.—ED.]

SEPARATORS.

A READABLE AND PRACTICAL ARTICLE FROM
A PRACTICAL BEE-KEEPER.

By N. D. West.

I notice on page 210, B. Taylor would have us fall in line with him—make our sections narrow, and cleat our separators, and all this and that.

Why, Mr. Taylor, we can't, *can't* do it. We ought not to do it. Why, sir, if we should change our sections every year or two, we should not get anywhere. We take only one step ahead, and then we only step over in a side rut in the road, when we change; no better, but we get another rut in our road, and it costs something to change. Now, sir, it does not matter so much what kind of sections we use, if all would use one kind, so that a box of honey would be a box of honey, just as much as a barrel of flour is a barrel of flour. So far as the size is concerned, it would be far better for the supply-dealers, better for the producers, better for all who have anything to do with the honey crop, if we could have a uniform section and shipping-crate. How many poor widows have had to sell their bees at less than half their value because their husbands had kept changing their hives, their sections, etc., from time to time, until their barn, shop, and every store-room on the place was filled with all kinds of bee-rubbish, good for nothing! The poor widow can't run the bees, and has to sell them at auction in about 14 kinds of hives, together with the rubbish, to the highest bidder at about the price of kindling-wood. If everybody would make his hives and sections alike, we could buy and sell bees at any time for their value; but we are not all alike, and so we must differ from other folks.

The $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{8}$ is the section that I am using, and I like it best of all. First, $4\frac{1}{4} \times 4\frac{1}{4}$, because more use this size than any other. Second, I want them $1\frac{1}{8}$ wide because that width suits me best, all things considered. I am producing honey for the money there is in it, and I can as yet get more clean money from my bees by using a section $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{8}$ than I can by using a section $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{4}$. I have had a little experience with these two widths. A commission merchant told me that my honey would bring more in the narrow section, which weighs from 10 to 12 ounces, or one pound with glass on. Two years ago I used 6000 of these $1\frac{1}{8}$ sections, and about 16,000 of the $1\frac{1}{4}$ section, and last season I used up about 2000 of the $1\frac{1}{8}$ sections that I had left, and I gave them a fair test, and the $1\frac{1}{8}$ -wide section was decidedly the more profitable section for me. I wish I had the figures to give exact, but I can't now find the paper that I kept the account on. But I figured it as closely as possible.

To begin with, I will say that I can use one kind of section as well as the other on the hives, as 14 sections $1\frac{1}{8}$ wide fill one of my half-clamps, including separators and follower; and 16 sections $1\frac{1}{4}$ wide fill the same clamp, including separators and follower, and two clamps cover one hive; sections run the same way the brood-frames do on this kind of hive; and, again, I have 200 swarms in smaller hives, the clamps of which hold 21 of the $1\frac{1}{8}$ sections, and 24 sections $1\frac{1}{4}$ wide; and on these hives the sec-

tions run across the brood-frames. Now, Mr. Editor, I figured from 100 colonies in this way: Say 100 colonies fill four clamps of honey each (I will not give all the figures now, as they are laid aside). I could not get any more clamps filled of one kind than of the other, but the best work was done in the clamps with wide sections. But the 3200 sections $1\frac{1}{8}$ wide did not weigh as much as did the 2400 sections $1\frac{1}{4}$ wide. But in using the $1\frac{1}{8}$ section I had 800 sections more to pay for; also the extra foundation to fill them, besides all of the time needed to handle them. This I do remember: that, if I sold the honey in the $1\frac{1}{8}$ section from the 100 swarms for 10 cents per pound, I should have more money than by using the $1\frac{1}{4}$ section, and selling the honey at 11 cents per pound. Both were sold at the same price.

My shipping-crates hold 24 of the $1\frac{1}{8}$ sections, and the same crate will hold 28 of the $1\frac{1}{4}$ sections, but the latter does not weigh as much per crate, so the cost is more to buy crates for the narrow section.

Again, the comb in the narrow sections is more liable to be attached to the separators than are the wide ones, from this fact: If a hive does not stand level, so that the foundation in the narrow box can swing but a trifle, it will cause the bees to attach the comb to the separators more or less.

Mr. Taylor says that, long ago, he discovered the great value of drawn empty combs in sections for getting a large yield of white comb honey; and he found, too, that, by using them, he wanted separators. I am glad of it. So do I; but I don't want the kind he uses.

□ I was going to say more about separators when I commenced, but will not now. But I will say a word about what I have noticed with drawn comb in the sections. I prize them very much, and use one row (the center one) in every clamp that I put on my hives before I tier up. Here, again, the narrow sections are more liable to be occupied with brood than wide ones. I will admit that the section 5 inches high has an advantage over a lower section of the same weight.

Middleburg, N. Y.

[On my first bicycle-tour I called at the home of N. D. West, in 1890. The gentleman himself was absent, but I was kindly shown about by his son. I saw evidences enough to convince me that Mr. West was one of the bright, intelligent bee-keepers of York State. I afterward learned that he was a successful manager of some 300 or 400 colonies distributed in one or more out-yards. I had the pleasure of making his acquaintance at one or more of the York State bee-conventions. At the meetings which I attended he was full of ideas, and was ready to give them to his brother-workers. The article is a fairly good sample of what he knows about bees; and the arguments he presents seem to be almost incontrovertible, not the least important of which is the idea of having regular goods—something that everybody can use, and which have a par value among bee-keepers everywhere. —Ed.]

RAMBLE NO. 130.

AT ST. HELENA.

By Rambler.



UR Spanish neighbors had regained their equilibrium in the morning; and as we departed they gave us a kind "adios."

St. Helena, 18 miles from Napa, is another of those beautiful towns we have so often observed. Like Napa it is surrounded with vine-

yards, and boasts of one of the largest wineries in the State. It would have been very pleasant to camp in such a town; but thinking we might get among the festive Spaniards again, we pushed along. Our friend H. L. Jones, the gas-man of San Francisco, having our welfare in mind, said we would find a beautiful camping-place beyond St. Helena—streams of running water; fir and madrone trees interlocking their branches, making a cooling shade, and, above all, it was near the residence of his friend W. M. Cole.

We found the camping-place all he had pictured it, and Mr. Cole was a Missourian of the "walk right in and help yourself" order. It seems that he delighted to have the camping public rest under the shade of the trees. For his special friends he had a cosy nook on the banks of the stream near his residence, which he offered to us; but as we were to stop only one night we preferred the more public place near the highway. Mr. Cole's house was so embowered under fruit-trees that but a small portion of it could be discerned. A thriving family of boys and girls were romping among the trees. As to how Mr. C. was getting along in other directions, I know not; but in the matter of a family he was a success—not the evidence of things hoped for by some, and not found, but here was evidence and reality.

Mr. Cole was a bee-keeper after a fashion. He allowed his few colonies to manage things their own way in the far corner of his garden. They held proud possession of a few cracker and soap boxes, and, according to Mr. Cole's ideas, they were a strain of bees known as the French bee. One of their shining characteristics lay in their fighting qualities. A neighbor across the valley brought in some Italian bees; but the French bees pitched into them. They had a general fight, and "fit and fit," and the French bees came off victorious.

"But I ain't no bee-keeper," said Mr. C. "I kin go out into the woods and get more honey than I can from my hives. These French bees work better in trees than they do in hives, and the woods are full of bee-trees." Said he, "You tell Harry Jones, the gas-man, to come right

out here and set up a bee-corral. It will pay him."

Mr. C. made some complaint about moths getting into his hives of French bees, and didn't see why, when they were such good fighters, that they let that pesky moth in to eat up a whole colony. Then grapes and French bees did not agree. In his little vineyard of choice grapes he left two rows for family use; but the French bees got after them after awhile, and cleaned them all out, and left nothing but the shucks.

Mr. Cole's swine-corral was located near the bees, and the pen and the hives were elbowing each other, as it were, for room. This led to a discussion in relation to hog and honey production vs. hog and hominy. I told him our gaseous friend in San Francisco proposed that line of labor.

"Just the thing," said Mr. Cole. "This is the best hog and bee country north of the city; and such an energetic fellow as Jones would make things lively up in this country. As you observe, my bees and hogs agree well together. And say, stranger, did you ever know of a bee stinging a hog?"

I had to confess that, though I had seen many hives located near hog-pens, I had never witnessed or heard of such a case.

"Well, it's a fact, sir, a bee will never sting a hog. If you get the scent of a hog on your hands or clothing it is the best of preventives to bee-stings. Smokers! wouldn't have one around. Just step over into the pen and rub your hands on the old sow's back, and you will have apifuge enough to last half a day." Unfortunately I am not so situated as to test Mr. C.'s plan. But when Mr. Jones gets his ranch started, and has several fat sleek porkers near at hand he can call up Peggy, Betsy, or Hannah, as the case may be, and secure the apifuge. It is quite possible, though, that the hog antidote could be successfully practiced with only our friend's French bee.

There were other small apiaries in this vicinity, but they were not numerous, and not managed according to modern methods.

Our fine camping-place was made desolate again in the morning, and we were rolling through that other beautiful town, Calistoga. The attractions of this resort are sulphur springs, mountain scenery, and climate. The vineyards shade off here into prune-orchards, which, healthfully and morally, is a good shade for the people.

Our friend Jones, of gas memory, had, at some preceding time, spread himself all over this country; and, knowing what he was talking about, he advised us to cross the St. Helena Mountains to Lake Co. by what is known as the Oat Hill route. We followed his advice, with "childlike and bland" confidence. We had an arduous climb again, winding up and around the mountain-spurs. As we were lifted

by the grade high above the Calistoga Valley, a scene worthy the artist's brush lay beneath us. The level valley is broken in many places by quite sizable hills; these, covered with trees and luxuriant deep-green foliage, looked like so many islands rising in the midst of vineyards, orchards, and homes, while the distant Coast Range gave a fitting background to the lovely landscape. I was also told that a view from this mountain road was peculiarly pleasing and novel when the fog was resting low down in the valley, every thing being hidden from view except the projecting hills, and the appearance was that of a large lake dotted here and there with islands. On the mountain summit we found a cabin and a refreshing fountain of water, where we were glad to rest our horses and eat our noonday lunch.

The geological outcroppings here were of a hard and stern character. The rocks were jagged and pointed, and we could imagine many an ancient castle with its towers and battlements frowning down upon us. Such a geological upheaval would naturally presage something of an unusual character; and here upon the northern slope of the mountains we find a profitably worked quicksilver-mine, known as the Napa Consolidated Mine. Quite a little town is perched here upon the rough and rugged side of the mountain. There is scarcely room for dwellings; but by digging out niches, removing boulders, and placing long stairs, the thing is accomplished. The mines are owned by 300 stockholders, all Maine capitalists. The laborer earns all the way from \$2.00 to \$3.00 per day, and quite a sprinkling of Chinamen are employed. The shafts, or tunnels, are run in horizontally from the side of the mountain; and little trucks, with a donkey attached, run out the ore to the smelter. Around the latter, where the fumes of mercury rise, is the only unhealthful place to work, and much of this is overcome by wearing sponges over the mouth and nose. It is said that corporations are soulless; but it seems that this corporation has a soul in the direction of temperance, and, let us presume, in other directions also. The stockholders, being Maine men, have brought the prohibition principles of that most Eastern State, and planted them here among the hills of the most western of our family of States; and, though great inducements have been offered to allow liquors to be sold in the only store, which is owned by the company, it is not allowed, and is kept from the grounds as far as possible.

A few miles beyond the mines we found a fine camp beneath the outspreading arms of oak-trees. Here we quietly rested over Sunday, the 26th day of August. Bro. Wilder, taking Rom. 14:5 for a text, went off in the morning early with his rifle, in search of signs of deer. There were some sheep around that country, so the signs, supposed deer-tracks,

were plentiful. He also found another fellow with a rifle who had strangely taken the same text; and when they returned in the heat of the day the signs on their faces plainly echoed the words of the Preacher when he said, "Vanity of vanities, all is vanity."

We are now in Lake Co., called by the inhabitants the Switzerland of America. We had previously heard of so many Switzerlanders of America that we suspected these people were hallucinated by local pride, and we resolved to have a lookout for the grand features. Our first day in the county was not favorable to Swiss impressions. It was hot, 108° in the shade, and the roads very dusty. After a long drive, wherein we could find no water for our ponies or dog, we made Lower Lake—tired, hungry, and dusty, and straightway camped.

HONEY AS A DIET.

A REPLY TO C. DAVENPORT, PAGE 217, MARCH 15.

By Thaddeus Smith.

I wrote the article on "Honey as a Diet," printed on page 92, which, through some oversight, appeared without a name to it, and upon which Mr. Davenport makes some comments and criticisms. Mr. D. says he does not agree with me, that a great many people do not like honey or care for it as food or a relish. He finds no dislike for good honey in his locality; but my experience in a different part of this wide country has been the reverse of his. We may both be right, and the apparent contradiction may be owing to the different location and the different class of people we have come in contact with. Mr. D. thinks that only those who never saw good honey dislike it. I can assure him that the good lady who gave me her reasons for not using honey on her table knew what good honey was, and I am confident that most of the persons I have alluded to have have had opportunities for seeing and tasting good honey—fine white-clover honey. I have known some progressive bee-keepers who care but little for honey, and do not use much of it in their families; and in the article referred to I called upon bee-keepers, especially those at the "Home of the Honey-bees," to give their testimony as to the amount used in their families. If Mr. D. had read carefully he should not have made the mistake of supposing that the editors wrote the article.

HONEY AT HOTELS.

In a recent trip to Florida, of six weeks, I did not stay long at any one place, and consequently was a patron of many and a variety of hotels. The bill of fare at most of these hotels contained a great variety of all the substantial and delicacies of the season, usually including maple syrup and other syrups; but I found honey on the menu of only three of the hotels that I stopped at. It so happened that I

took a breakfast at the grand Tampa Bay Hotel (cost one dollar and fifty cents), and there I found "orange honey" on the bill of fare. But there was such a grand array of good things displayed on this menu that I did not call for it.

At Atlanta, Ga., I also found "orange honey," and this time called for it. I was brought a dark liquid resembling Florida syrup—fully as dark—which had a bitter and astringent taste. I could not eat it, and called for maple syrup. At another hotel I got some comb honey. The comb was white and tender, but the honey was darker than any fall honey I ever saw in the North. The quality was a great improvement upon the first, but not up to our standard. I should like to hear from A. I. Root in regard to the honey he found in Florida.

UPWARD VENTILATION WITH A VENGEANCE; A SINGULAR CASE.

A friend in Kentucky kept bees many years ago. Thirty years ago he had some of his bees in movable-frame L. hives, and a very nice little apiary; but in the pursuit of other matters he soon lost interest in them, ceased to care for them, would not have new swarms or have any one else do it. He had so completely abandoned and banished them from his mind that he did not know whether there were bees on his farm or not when I visited him last fall. I looked around his place where he used to keep his bees, but could see nothing left of the old frame hives except the body of one up in the garret of his two-story house, where a fine colony had once flourished and stored large quantities of surplus honey. The hive contained the litter of the combs, eaten up by mice and moth. The frame hives outside were all gone, but there were a few remnants of box hives, some partly broken up, some filled with moth-cocoons, and one without cap or cover, with live bees in it. All were nearly rotten. I do not know positively how long these bees have been in that hive, but I think they have been there 12 or 15 years, and probably longer. The hive had a $1\frac{1}{2}$ -inch auger-hole in the center of the top—uncovered—exposed to rain and snow. To protect them a little I kicked an old hive to pieces (and it was easily done), and laid one of the pieces over the top, with a stone on it. But as there were some strips on top of the hive the board did not fit down close to the hole; it was still open. So much for the introduction, now for the sequel. My friend, his wife, and myself went to Florida. They will remain there until April. I returned March 5th, and am staying at their house with their two sons. I went to look at the bees, and found the hive turned completely upside down, without any cover over it; but the bees were alive, and seemed to be quite strong. I called up the colored man, who seems to be a kind of foreman while the owner is away, and asked him what he knew about the bees. He said, "I

reck'n the mules must have knocked it over; they were in the yard here the other day. They knocked it over once before in cold weather, and I turned it up again." But he could not tell me how long it remained turned over either time. In another place, in the orchard, March 12th, I found another box hive turned upside down and full of comb, no cover on it, and, to my surprise, there were live bees in it. I carefully turned it up and sought the colored man again, who, by the way, is quite intelligent and very reliable. He said the hive had been in that position all winter; he thought the bees were all dead, and he did not pay any attention to it. From the indications around it, and the impression on the grass, where the hive stood, I am satisfied that it did stay in that position all winter; and this has been the coldest winter known here for many years. In December the thermometer was 14° below zero, and in February 18° below, and either down to zero or below every day for three weeks in February. This is a case of extraordinary upward ventilation, and shows what an amount of exposure bees will sometimes endure. But why is it that this is only *sometimes*? There must be some cause for it.

I have a theory in regard to this particular case. There was a great deal of snow—ground covered all the time of the cold weather, and no rain all winter. The combs were level with the bottom of the hive (now top), old and strong, and became covered with snow which remained until warm weather, it being too cold for the heat of the bees to melt the snow above them. This was some protection to them during the coldest weather; but when this melted off they remained in that unprotected condition up to the time that I discovered them. March 19th I examined the hive to see if the bees needed feeding; and in raising the box up, every comb in it dropped out. The exposure to rain, snow, and frost had loosened all the combs from the box. The colony was not large, and there were but comparatively few dead bees. Two combs contained large patches of brood, and they still had plenty of honey. I transferred them to a clean box, and they are doing well. These hives are cases of extreme ventilation, and of upward ventilation at that. They wintered well, but probably will not decide the much-mooted question of sealed covers or upward ventilation. I merely give the facts, without entering into the discussion.

Midway, Ky.

[In regard to the honey I found in Florida, I would say I saw little or none on the tables of the hotels; but I found beautiful honey in great plenty at the homes of all the bee-keepers. I do not think I saw any poor honey even once. Very likely they brought out the best, or saved up some of the best for me. I learned to be very fond indeed of honey from saw-palmetto. And that makes me think I am guilty of putting a wrong title under cut on page 146. It should be saw-palmetto and not cabbage. The cabbage-

palmetto does, however, furnish good honey also. Honey from mangrove and that from saw-palmetto were pretty nearly the only two kinds I found. The honey from orange-blossoms is so often mixed with that from other sources that it is a pretty hard matter to get it any where near pure, as a general thing.—A. I. R.]

HOW TO CONVERT OLD BROOD-COMBS INTO FOUNDATION WITHOUT MACHINERY.

A NOVEL IDEA.

By W. M. Little.

During the past season, 1894, I succeeded in working over old brood-combs to my complete satisfaction. I had about 200 old combs, that had been in constant use for 12 years. I tried rendering them, but could secure but little wax from them, as the cocoons and other substances absorbed all of the wax, and I had nothing left for my labor. So I began to experiment a little. I began, with a sharp Bingham honey-knife, trimming down the cells of these old combs (some of them were old transferred combs taken from old box hives ten years ago). I soon found I could cut through the cocoons down to the septum by care, and leave the base of the cell intact; then, turning the L. frame over on a board, cut the right size to fit the frame, thus supporting the comb, and I could trim down the other side in like manner, leaving a sheet with the base of the cells well defined. The bottom of each cell will be filled with the base of the cocoons of all of the past generations bred in them; these, however, the bees remove in a short time, leaving the septum much like the sheet of foundation at the first. If the sheet is torn, or if there are patches of drone comb that I desire to dispense with, I cut it out, and patch it with brood foundation, using melted wax to hold the patch in place until the bees fasten it permanently.

I succeeded in getting 150 combs of this kind rebuilt in a few days in the early part of June last, before the honey-dew began to be gathered by my bees, when they would not build comb of any kind. These combs were mostly built on wired foundation in the first place, and, having been rebuilt, are firm, and stronger than those built first on foundation. After working at cutting these combs down I became quite expert at it. It takes a keen, stiff knife, using cold water to keep the septum stiff, so that it will not stick to the blade, and tear. With a little experience at the business, one can trim them down quite rapidly, and can make brood-combs much more rapidly, and with less waste of wax than by rendering the combs and molding them again. The bees seem to delight in pulling out the base of the old swaddling-clothes of former generations of bees, and mending the rents and patches in the old comb, and working them over.

If my health permits, and the bees have work to the coming season, I will work over a large

number of my old combs this year, as I am well pleased with the result of my experiment last year.

WM. LITTLE.

Marissa, Ill., March 9.

HANS READS A. I. ROOT'S BEE-BOOK.

I reads dot book dru ant dru,
Und I studies it ore and ore,
Mine het it vas most bustin.
I c'n not stand upon der floor.
I reads about dot Doolittle,
Und pee-mons by der schore;
I yust can not sit sthill,
I gets me yup and vakes der floor.
I goes to see von nabor-mon,
He gots do, dre'e hifes or more,
He dells me ne dot does bee-mons
Dravels der gundry ore.
I studies dot bee-book in und oud,
But I denk does bee-mons
Knows vat dere about,
Does bees make you look a little oud.
Und as I reads dot pook
I denk, "Hans, you get some bees,
Und dry your luck mit huny,
Und hife dem in der trees."
I gets mine bees from Alley,
Dot new fan-dan-gh d kind;
He says dey makes der most hunys,
Und works quite to der mind.
I gets my hives all redy,
Und fix d-m out among der trees.
Und I denks "Now, Hans, you bees happy
Mit your lofly little bees."
Does bees comes out
To haf a li the fly
Shimney Gristmas!
Oue sthicks me in der ey!
Dot ey it keeps a swellin,
I can not see no more.
I denk I fix does bees;
I shmoke them do, dre dimes or more.
Does bees dey come a pilin out,
And I runs me all about
To get der hifs all redy
For does lofly little bees.
Does bees crawl up my bant legs,
Und sthings me on der knees,
I runs arount most gracy,
Und get some vater for does bees.
I dink does pees of Alley's,
He says dey bees so kint,
When dey gets a sthinging me,
Dey works quite to der mint.
I hife does bees do, dre'e times or more;
Mine hart mit dispair vas akin,
For yust so sure I haf dem rite,
So sure I vas mistakin.
I c-lls mine wife to help me oud,
Mide demper vas most rilin,
Ven oud gomes does bees
Yust a bilin'.
Then I say, "Hans, you bees a fool,
To be so long a lookin,"
So I gets me in dot house,
Und gets dot book to look in.
Does bees flies round and round,
In does trees dey sthop not eny;
Mine vife she say, "O Hans!
Der bees so very meny."
I gets does bees right in dot hife,
They goes to makin huny;
I say, "Now, Hans, ol't poy.
You ged your bokets full of muny."
I reads about dot Rambler,
Dot funny mon is he;
He no likes the vimens,
But he lofes dot little bee.
But now I bees so happy,
Dot book it helps me oud;
Und I studies it some more,
To knows what I bees about.
I denk does bee mon's
Heads is level dot rites
Dot book about der bees;
It has helped a greenhorn yust like me.

HANS VONDERBLINKEN.

COGGSHALL'S SPRING MANAGEMENT.

ONE DAY'S WORK AT THE OUT-YARDS OF AN
EXTENSIVE AND PRACTICAL
BEE-KEEPER.

By Harry S. Howe.

On Thursday, May 10, 1894, I received the following card from Mr. W. L. Coggs hall:

Friend Harry:—Come over Saturday, and help us make the grand circuit, if weather is favorable. Apple-bloom is nearly over. W. L. C.
West Groton, N. Y., May 9, 1894.

With me the apple-bloom had been for some time over, for I was teaching at that time twelve miles west, near Cayuga Lake.

We always wish to unpack the bees just at the close of apple-bloom, for there is nothing to gather for a time then. If they were unpacked during the flow, they would lose a day or two of honey. There is sure to be a slacking-up of brood-rearing at the time of unpacking, and also when apple-bloom is over; so we bring the two together when we can, for they are not apt to slow up much more for both than for one alone. Of course, the weather has also to be consulted in regard to the best time to unpack, for it would not be well to set them out when a cold wave was expected, even if they had to stay in another week. This time, however, the weather was all that could be desired.

When school was out Friday afternoon, I got out my wheel, and arrived at Mr. C.'s house in time for supper. After supper, Mr. Coggs hall, Russel, and I sat down to talk over the campaign for the morrow. Just here, perhaps, is a good place to introduce Russel Stennet, a young man from Virginia, who came North to put the finishing touches on his education as a bee-keeper. This was to be his first trip to the south yards. After talking a few minutes, Mr. C. remarked, "Well, Harry, I have started a new yard this year again."

"Where?"

"In that nice location near Etna we talked about last year."

"Why did you like that better than the others?"

"It is near the station, and will make a good place to store the honey from the other south yards, if I do not want to ship right off early."

"Yes, I remember that we figured out that the Etna station was the nearest one to most of the honey. By the way, how are we going to-morrow?"

"We will take the team and democrat wagon. It would be a rather big load for the buggy; besides, I want to take some smoker fuel."

"When were you at those yards last?"

"I have not been to Ellis since they were packed last fall."

"What time shall we set the alarm-clock?"

"It is a long drive there. Perhaps we had better start by six; that would get us up by five."

After some more talk on bees in general, we went to bed. The next thing I knew, the clock

was ringing away for us to rise. The chores were quickly done, and the wagon run out and loaded with the things that were to be taken. After breakfast, came the seven-mile drive to the Brown yard. Arrived there, Mr. C. showed Russel where to put the team, while I unlocked the honey-house and lit the smoker. The supply of fuel for the season was put in place, and a box of matches in the match-box.

The fifty colonies at this place are in chaff-packed Eclectic hives. It took but a short time to take off and pack away the cushions from the tops, and see that there was no loss. The bees were apparently in need of nothing, plenty of honey having been left the previous fall.

Russel and I put the team out while Mr. C. went over the yard to see that every thing was all right, and that no fire had been left. Then the three miles to Etna quickly passed, where the same business with the team was repeated. This yard required more work, however. It was put in place while the snow was on last winter. Some of the bees were drawn from other yards; others were bought. Those new ones were not in the best shape for rapid handling. The combs of some had grown together so they had to be cut apart. The five miles of road to Ellis is over a high ridge of hills, the last two miles over an old wood road upon which three or four families have settled. Russel said that it looked much as it did down home in the mountains, where they have done no work on the road in years. The land on each side had been covered with pine, which had been cut off, giving place to thickets of chestnuts and brush. The Ellis yard, however, is situated in a fertile valley. We ate our dinner, which we had brought along, before beginning work. For a cold dinner we have found nothing to equal good bread and milk. This time we had a loaf of Mrs. Coggs hall's bread, and she can't be beat as a bread-maker. A two-quart can of milk, some strawberry sauce and cookies, taken together, makes a meal which a king might envy. When I go on my wheel, I take my dinner with the people we rent the yard of; but it would not always be convenient for three to drop in on them just at meal time.

This yard of 67 live colonies was set out in a hurry. They are in Mr. C.'s own style of packing-case, which he will describe for GLEANINGS soon. The places where the stands stood were plainly marked in the grass. This yard is the hardest to reach, but every thing is so handy when we get there that we do not have to stay long.

We are now fifteen miles from home, and two o'clock finds us on the road back over the hill. The road we take is, if possible, worse than the one we came by; but we are at Varna at last. Here the work is much the same that it was at Ellis, except that about 40 of the 90 live ones we find are in chaff hives, which do not have to be

handled. When this yard is finished, we drive home rather leisurely. Just after sundown Mr. C.'s little boys stop from their chores to shout, "Here is papa!"

We had driven over thirty miles, unpacked 131 colonies, besides going over 110 colonies that were in chaff hives.

We have a regular system upon which we work, not only in unpacking, but in all the work with the bees. To do rapid work, one must have, first, handy hives and fixtures; second, a system that fits the hives; third, men who are used to both. In the case of that big day's work we had hives of two entirely different patterns, neither one of which has proven itself so superior as to drive the other out of use.

We had a system that is the result of over a quarter of a century's constant effort to systematize the work. We had two men who had worked together more or less for seven seasons; the third was an experienced bee-man, quick to learn, but he had never worked on that system before. We go to work as soon as we reach the yard and every thing is ready. The first step in unpacking is to place the bottom-boards. These are loose. They are placed where they stood last year. They can be told by the places where there is no grass. One man carries them out from the honey-house, where they had wintered, and sees that they are level from side to side, and tipped slightly forward. The others take off the covers from the packing-cases, which hold eight colonies, and place them near where the empty cases are to stand, then the hives are lifted out one by one, after being slightly smoked at the entrance, and placed upon the stands. Care is taken to place the weaker ones where the cases stood, while the stronger ones are placed on the ends of the rows. The empty cases are placed out of the way, but handy for the following fall. The covers are carried out and placed on them, and that is the end of that boxful. This is repeated with each box until all are out. The hives are all looked into to see that they have a queen, etc. Sometimes the one who is looking through the hives calls a consultation of doctors to see what to do to some one that is out of the regular run, or perhaps it is a coroner's jury that is called to find the cause of some mysterious death. Mr. C. himself, however, is rarely at fault in such matters, his long experience enabling him to see at a glance what it would take one of his younger generation hours to study out. He is always willing to impart his knowledge to those about him.

The work of the day goes along without many directions being given. Once telling in the morning is supposed to be sufficient; in fact, Mr. C. very much prefers to have experienced help. Of course, when he has a green hand, he has to keep watch of him and see that he is working to good advantage. The things that are used during the day are all picked up at

once. It seems to be cheaper to drop empty hives, extra covers, etc., where they happen to be, and then carry them all in at once, than to make a separate trip for each article.

Mr. C. says that he is handling bees for the honey, and that, if he can work faster or easier by having things handy, he is going to have them so. He carries his system of rapid work to his farm, and even to the harness. There are no buckles on his harness to unbuckle; those places are all fastened with snaps. His idea is, to get a good system, and then stick to it, study it, perfect it in every detail until you can do your work with the fewest possible motions and the least expenditure of time and strength. One of the best ways to make bees profitable is to reduce the cost of the production of honey.

Groton, N. Y.

PRODUCING COMB HONEY A LA FRANCE.

CAN IT BE PRODUCED OVER TWO EIGHT-FRAME BODIES?

By E. France.

I am asked to give my plan for producing comb honey. I suppose you all know that I am not a comb-honey producer usually, although I have raised some. I have been thinking of working a part of my home yard for this purpose, but I have not got at it. Several years ago I got 100 supers, right size to fit my hives. They hold 24 sections each. I got 4000 sections. I have the most of them yet.

The question that is put to me is this: How would I produce comb honey, using a two-story eight-frame brood-chamber? This would depend on circumstances. If the bees gather and store that much, I must have eight frames full of good sealed honey to winter the bees first; then if honey is coming so they can store more, I will have it put in sections; confine the queen to the lower story with zinc, then put on the sections with foundation starters; put the second story of eight frames full of honey on top of the sections, if the colony was strong. I think it would be best to give them two supers—one over the other. I would not put on the second super of sections at first. Wait until they get crowded for room. As fast as the sections are completed take them out. Give them plenty of work to do between their winter stores and the brood-nest. I am keeping their winter supply overhead to save it. If the frames of honey were below the sections, the bees would likely put some of it up in the sections, and I don't want them to do it. I want to give the bees their share, and I will take what I can get after they have theirs.

If the colony is strong they may swarm. If they do, put the queen in a cage, and put her into one of the upper sections, after removing all queen-cells; then in ten days remove all queen-cells again. In ten days more, liberate

the queen. I have tried this plan with six colonies. In 1886 I got both supers filled with honey—48 sections.

Another plan. As I am working for extracted honey mostly, with three sets of combs, I made the extracted bees feed the comb-honey bees. In this case I don't wait for the section bees to fill the combs to winter on, but put the sections on earlier, and not have the combs above them—just sections with the honey-board on top of the sections, queen below the zinc in the lower story. Give them all the sections they can fill, to the very last of the honey season; then take off all the sections and zinc queen-excluder; put on a second story, and fill it with full combs of honey from the third stories of the extracted bees. This plan gave the most section honey; but they are more liable to swarm.

Bees could be worked on this last plan, and then give them a set of empty combs, and feed sugar syrup for winter feed. But for me I like the honey best. I was forced to feed my bees 14 barrels of sugar in the fall of 1892, and that winter I lost 160 colonies of bees—a greater mortality than any year before or since.

Now, I don't know but the comb-honey men will laugh at me, or at my way to get comb honey; but I don't know any better. Remember that location makes all the difference you can imagine. What is best in one place would be folly in another.

Platteville, Feb. 27.

BEE-KEEPING IN THE TROPICS.

SOME INTERESTING ITEMS RELATIVE TO BEES
IN GUIANA, ETC.

By Thomas B. Blow.

Dear Friend Root:—I wrote you some months ago that I was going to take a complete change this winter, ill health having been troubling me much for the past year; and I said that, if I saw any thing of interest in the West Indies or elsewhere, I would write you. You very kindly sent me letters of introduction to all the people you knew in that part of the world. I received these at Trinidad, and you have my heartfelt thanks. I was, however, prevented from going to the larger islands, where those bee-keepers lived. My route was to British Guiana via Madeira from London, and I found that very little bee-keeping was carried on there—none commercially. There are two or three bee-keepers in Georgetown, with small apiaries, and their bees are kept in rough boxes or rough hives, with American frames. There appears to be a moderate yield of honey; but owing to the great equality of the climate the year round (the variation not amounting to more than 10 degrees of temperature) there is nothing in the shape of a harvest as we understand it. The bees I saw were all descendants of imported bees, and greatly resembled Carnio-

lans. There is a wild bee here of the genus *Apis* (about half the size of *Apis mellifica*), stray swarms of which often take possession of an empty box in an apiary. They, however, yield but little honey, and are few in numbers compared with a colony of common bees. After seeing some of the sugar-factories here (for sugar is the greatest industry here, though at present in a very bad way owing to the great competition with German beet sugar, many of the estates being abandoned; for, though they are in a high state of cultivation, and some have upwards of \$500,000 worth of machinery in the factories, yet they are quite unvaluable), I proceeded to see the gold-mines, which are becoming quite a great industry. They are, however, rather remote from civilization, the nearest being between 200 and 300 miles up the Essequibo River and its tributaries, most of the ground they occupy being part of the territory so long in dispute between Great Britain and Venezuela. The only way to reach them is by open boat rowed by (or, rather, paddled by) about twenty colored men; and as a great many rapids and falls are encountered, it takes about seven days to accomplish the journey. Each day, when we halted the boat for the midday rest, I went into the bush as far as possible, to see what bees I could find. There were great numbers of the small stingless bees (*M. trigona*) that store their honey in little bladder-like receptacles; and at one place I noticed quite a number of bees, pollen-laden, at a creek, taking water. They much resembled Carniolans, but were fully a third larger, and much more hairy. I was sorry that time did not allow me to trace them to their nest. This journey, botanically, was most interesting; for at the rapids, which are the only parts of the river that support any vegetation at all, I was able, during the time the boat was being drawn up, or portages made, to study the habits of about three species of *Podostomaceæ*, of which very little is known.

Altogether this journey was a great treat. The camping at night, our hammocks swung between the trees, and the numerous campfires, with the men cooking their evening meal, was something quite new to me.

Leaving the South-American mainland, Trinidad was the next point of call; and, though so beautifully written about by Charles Kingsley, in "At Last," yet I somehow failed to appreciate it, and I was rather glad, at the end of 12 days, to make ready to depart. There are a few bees kept near the town, and quite a lot in Maraval, on the Mocha estate there. Their owner is Mr. Watkins, who hails from near Hereford, England, and I had a real good time with him. Mr. Hart, the government botanist, keeps a colony of the stingless bees (*trigona*) near the door of his laboratory; and he told me that at dusk each evening the entrance of the hive was sealed up by the bees to prevent intruders entering during the night. Granada,

St. Vincent, St. Lucia, Martinique, Antigua, Nevis, St. Kitts, and Redonda, were visited; but the last and most interesting was Montserrat. I was here enabled to make an interesting observation as to the quantity of beeswax produced in a given area. The island is quite a small one—30,000 acres—with a population of 9000. Bees are kept to some extent, but I imagine a quantity of the wax is got from the wild bees in the forests on the mountains. I had the good fortune to be provided with a letter of introduction to a gentleman who is practically the sole buyer of all the beeswax that is exported. The whole appears to be brought to him with the exception, perhaps, of a little that the chemist gets for local use. The average quantity is about 1120 lbs. per annum, or about 1 lb. to every 27 acres. This island is in a better position than any other I visited, for the production of comb honey, owing to the vast plantations of limes, the property of the Sturgis Montserrat Lime-juice Co. The honey is very superior, being much like the South-European orange-bloom honey, and commands quite a high price locally—about 5 cts. per lb., being put up in empty whisky-bottles, which, I compute, hold about $2\frac{1}{2}$ lbs. each. The surplus honey finds a ready market in Trinidad.

I here found my time was exhausted, and was hence obliged to give up any extended visit to Cuba, Hayti, and Jamaica, which, of course, are the great bee-keeping islands, and I am writing this at Barbadoes, on my way home.

[I will explain to our readers, that Mr. Blow is one of the leading-supply dealers in England. He has traveled extensively throughout Continental Europe, and to some extent in the United States.—Ed.]

JELLY-FISH.

AN INTERESTING DESCRIPTION OF THEM

By J. W. Buel.

The *Discophera* (disk-bearers), such as jelly-fish, sea-nettle, etc., are a very numerous, attractive, and (under some circumstances) troublesome community in the waters of the ocean. They seem restricted to no temperature or climate. They exhibit the most infinite variation in size, form, and color. Many of them add to their personal charms the phosphorescence which is so charming a feature of evenings at the seaside. Their delicate tissues assume all imaginable forms, and rival the magic of the kaleidoscope. The arms proceed from beneath the umbrella-like disk, and resemble the four posts of some grotesque arbor. The mouth, when existing, is placed in the lower wall of the disk, and is furnished with tentacles. A common species has a multitude of filamentary tentacles which resemble a fringe dropped from the seat of a chair; these it entwines about any object of contact. As each one of them is endowed

with the ability to sting, it can make its presence felt, and its memory a "possession for ever." One species is frequently two feet in diameter, and moves about in schools, or shoals, which oftentimes are sufficient to interfere with the progress of boats. Irridescent in the sunlight and phosphorescent in the twilight and darkness, their course is a path of light.

The jelly-fish is the glass-umbrella of the sea, and in place of the handle are numerous delicate filamentary tentacles. By the contraction and expansion of the muscular umbrella-like body, the creature makes its way through the water. Its tentacles, however, contain a sting and a poison-cell, so that, while admiring its beauty, one must remember the maxim, "Do not touch me."

All animals' bodies are partially water; but the jelly-fish contains only about thirty grains of solid matter out of a possible ten pounds of weight. Many a person who has admired the beauty of the floating jelly-fish has been surprised to find it almost vanish after it had been caught. A story is told of a thrifty farmer who collected loads of jelly-fish, thinking to fertilize his land therewith, but found that he had rather discovered a new method of salt-water irrigation.

DRUGS FOR FOUL BROOD.

WHY THE OPPOSITION TO THE DRUG METHOD.

By F. L. Thompson.

At various times in the past you have said that you took no stock in drugs for the cure of foul brood. I differ with you, if you meant that drugs never cured foul brood. We have had cases enough, with three different drugs, to prove that they do. Cheshire and others (among them one of our county inspectors) have succeeded in curing foul brood with carbolic acid; Ed. Bertrand cured 37 colonies with salicylic acid; and others in Switzerland have recently succeeded with formic acid. In the face of such evidence we are justified in simply disregarding the assertion which Mr. McEvoy and others make, that foul brood can not be cured with drugs.

But it seems a little singular to me that energy should be wasted in these fruitless assertions when there is another evident loop-hole by which the drug cure (for that is the proper term) can be attacked; namely, its great slowness. Even lysol, for which so much is claimed, took three weeks to effect a cure. Now, if one man's sick colonies were all he had to look out for, the drug cure would be the thing, though it needs skill and thoroughness, as many have failed with it; but when there is danger that not only his remaining healthy colonies, but also his neighbors' bees, will be infected, while he is putting over his drug cure, it is evident that we, as a community of bee-keep-

ers, can not allow it. There is nothing better than the old way of inspectors and transferring, or possibly the Baldrige method as amended in the August *Review*.

But where I am criticising you, Mr. Editor (and nearly every writer on the subject, for that matter), is right here: Here are all these drugs, of such *proven* efficacy in their relation to *Bacillus alvei* that they will stamp it out, even when it has accumulated in such proportions as to cause the death of the brood; and, on the other hand, there is foul brood itself; and no one who has not been through the mill can realize what a disagreeable job it is to deal with, not to speak of the loss. Is there not the strongest kind of presumption that some one of the drugs mentioned can and ought to be used as a preventive by bee-keepers who are anywhere near foul brood, and that every contribution to drugs as *cures* ought to be eagerly welcomed, whether slow or not, for the good it may do in *prevention*? Our wise shakes of the head ought to be reserved for the impractical method of relying on drugs, without transferring, *after* the disease has obtained a foothold.

So much for *a priori* grounds. Are there any *a posteriori*? Yes, and good ones, though not extensive as yet. I have not at hand the number of the *Progressive* (page 76, 1894) which contains what I refer to; but the following is Mr. Hasty's comment: "D. L. Tracy, of Denver, makes a success of preventing foul brood by the use of dilute carbolic acid. For four years neighbors all around had it badly, and he escaped. He merely sprinkled heavily the *tops of the frames* three times each breeding season. Formula: Carbolic acid $\frac{1}{2}$; salt $\frac{1}{3}$; water 296. □ (One part of carbolic acid to 300 of water, and a level tablespoonful of salt to every pint of the mixture is an easier way to remember it.) Easy enough to try. But don't put on fire-proof paint as a preventive after your building is all ablaze at one end. That's about the way half the boys would do—if they did any thing." But that last statement should not be construed to indicate that preventives should not be made known for fear they would be taken as cures. The rest of us ought not to suffer, even if some men are fools.

The first year I began bee-keeping I had to transfer all I had—20 colonies—on account of foul brood. Being a novice, and pressed with other work, my colonies were so weakened that they took until the fall of the second year to build up; and the second spring after, the spring count was 7 to show for the original 20. A knowledge of a preventive, and a sense of the desirability of using it (which the bee-papers do not give) at the time I bought my bees, would have saved me \$100 at the least. It is a terrible mistake, sometimes, to be too cautious, when nothing would be lost by venturing.

Let us admit that a colony in full robbing career would contract the disease anyhow, pre-

ventives or no preventives; still, the evidence that the preventives would make a great difference in the degree to which that colony would be afflicted is strong. Compare Mr. R. L. Taylor's occasional plan of holding the dread disease in check by the use of medicated feed until the close of the season—not that such a procedure is to be recommended; but for evidence, it is just what we want. But in the majority of cases it is probable that the disease does not begin by excessive robbing. A taste here and there, and a bee entering the wrong hive occasionally, are mainly what we have to look out for, and are precisely the conditions which we have very strong reasons to suppose would be rendered harmless by those drugs which have been able to effect cures.

Mr. Adams, the inspector for Boulder County, who constantly uses and recommends the formula referred to, and can furnish other evidence besides what I have given, spoke of it at the meeting of the State Association last April, but said plainly that he did not recommend it as a cure. After learning about it I told a near neighbor, who had about 250 colonies among which he had discovered two cases of foul brood shortly before, that I would apply the method to the rest if he would furnish the materials. He agreed, and I did so. Neither his bees nor mine showed a trace of the disease last season. Perhaps they would not have done so anyway; but who knows? I do know this, though; that, if the disease had spread among those 250 colonies with the same rapidity that it did among my 20, the labor, the loss, and the vexation would have been enormous.

Another use of drugs, and an important one, is in treating colonies *after they have been transferred*. That is the very time when, if by any hook or crook—a drop of foul-broody honey should be left exposed, they would be apt to get it; and such treatment is especially desirable when, for any reason, the remaining colonies have to be transferred during the day, instead of in the evening—and that is quite often the case—when there are many to attend to. Experience soon shows that the assumption, that more than a very, very few colonies can be properly transferred by one or two persons, after the bees have stopped flying and before it gets dark, is fallacious. Robber-bees fly as late as they can see, anyhow; and the average bee-keeper can not muster a gang of men for this business, even if he could afford it. Here is where the Baldrige method, if approved will be a boon indeed. I transferred most of mine during the day (after a few frantic and unsuccessful attempts to do it up in the evening), and fed a part of them with medicated honey, after boiling. At this time the bees had begun to show a slight propensity to rob, the main flow being over. If I had to do it again I would sprinkle the hives of all after transferring, and give medicated food to all. The next

spring but two colonies showed slight indications of foul brood, and were again transferred. If I had known of drugs as a preventive, perhaps not even that much would have reappeared.

"An ounce of prevention is worth a ton of cure," said one of our Denver bee-keepers, referring to foul brood; and every one who has had it among his bees will say amen. The question becomes doubly important when we reflect that, as Mr. Getaz suggests, whatever cures foul brood will probably cure paralysis, and therefore prevent it. No, sir; we can not go back on drugs yet. I move that the bee-papers change their attitude in this respect.

Arvada, Colo., Mar. 4.

[I sincerely wish there were a reliable drug cure; and I shall be only too glad if such has been found.]

I believe I never said that carbolic and salicylic acid would not cure; but the former, at least, seemed to do no good in our case. I tried (or, rather, a college friend for me) carbolic acid diluted according to Cheshire. A quantity of this mixture was introduced into test-tubes containing pure cultures (i. e., the growing germs of foul brood in beef-gelatine). Did it kill them? Not at all.

Every one, so far as I know, has been successful with the mere starvation (or foundation and clean hive) plan; but very few by the drug plan; hence I have recommended the former.

I am not opposed to the drugs, and I sincerely hope that the time will come when we all shall be able to use them with satisfaction, because it will be far cheaper. Perhaps you will be interested in the following very readable article from Mr. Gravenhorst: but don't forget to note that he says foul brood will go off many times of itself. If he is correct, and I think he is, it is easy to explain *some* of the drug cures.—ED.]

LYSOL

ITS USE AS A CURE FOR FOUL BROOD: CRUDE CARBOLIC ACID PREFERRED TO THE REFINED.

By C. J. H. Gravenhorst.

Referring to a report from Germany, where a Mr. Fulde has cured foul brood by means of a new disinfectant, lysol, Dr. C. D. Miller asked in GLEANINGS, page 88, "What's lysol? and will it work as well in the English language as in the German?" The editor remarks thereon: "I should be interested, also, in knowing whether the disease stayed away. Perhaps Mr. Gravenhorst will answer the question."

Yes, I will answer the question according to the best information I can get. I have not tried lysol, because I did not know of it before September of last year.

The new disinfectant has been manufactured for a few years by Schülke & Mayr, at Hamburg, Germany. They produced it from coal-tar. It has a brown color, and smells like tar. In Germany it is to be had in every drugstore, and perhaps in America also. Mr. Fulde purchased a bottle of lysol for 2½ cents, and therewith cured his bees, which were badly infected

with foul brood. He took ten pounds of sugar-syrup, boiled and skimmed it, and mixed it up with 24 drops of lysol and 4 drops of carbolic acid. He gave a colony a soup-plate full of this food. After three days he found the sick larvae dry in their cells, and in a lapse of three weeks not a trace of foul brood was to be found in his colonies. They were sound, and did swarm. Later he has fed lysol in the same way, particularly in the spring, to protect his bees against foul brood. He never saw a trace of it again.

That's all I know about lysol. I hope some of the German and American bee-keepers will try the new disinfectant. It would be a great benefit to bee-keeping if lysol should prove to be a remedy for such a rapidly spreading disease as foul brood. Then it would be a trifle for every one to cure the malady himself. However, I confess that I do not have such confidence in lysol as Mr. Fulde has. Experienced bee-keepers in Germany, and I myself, too, are of the opinion that the disease will disappear, oftentimes, without any cure other than a good honey-flow, when good sound honey is coming in, and that most of the remedies tried in such cases did not cure foul brood at all. The good honey-flow only, did it, nothing more. Hundreds of remedies have been recommended, but, when tried, they would not work as was claimed. May be that, in one or the other case, the remedy was not used as it should have been; but I think most of the recommended remedies are worthless, and rest upon illusion.

On account of the importance of the matter, it may not be out of the way to report concerning a disinfectant that I have used nearly twenty years, with such results, that, for my part, I hold the foul brood question as fully solved. I have had to fight hard against foul brood, as I resided in Brunswick, and, later, here in Wilsnack; but I have never lost one colony by it. I had to guard my apiaries against neighboring bees infected with foul brood, in apiaries only a thousand paces, or less than half a mile, distant. Well, it was a very bad position for myself; but I have fought it out. In a few cases, where the neighboring apiaries were lost by foul brood, I have found in some of my hives slight traces of the disease. However, they disappeared swiftly by my treatment. I used, and have used till to-day, although I have not at present any apiaries near by that are infected with foul brood, carbolic acid—not the refined article you get at the drugstore in the shape of white crystals, but black and unrefined carbolic acid, which is intermingled with coal-tar, and mostly used as paint. Refined carbolic acid is too strong, and the sanative power of the tar is absent in it. I am of the opinion that just the tar, in connection with the carbolic acid, has much to do in the cure of foul brood, as Dr. Preuss said. He was the first bee-keeper who studied foul brood. This opinion is confirmed by

another prominent German bee-keeper, Mr. Schroeder, at Frankfort-on-Main, who has mixed up refined carbolic acid half and half with coal tar, and thus cured foul brood. I, however, prefer the unrefined carbolic acid, not this mixture. Although among foul-brood-infected apiaries at Brunswick, I have never lost a colony by this disease; yes, and I have cured the foul-broody apiaries of my neighbors, except one, which was a total loss, as the owner was careless and did not follow my directions. I bought his hives and combs, disinfected them, and used them without harm to my bees. All the bee-keepers who followed my directions strictly, succeeded in getting rid of the disease.

To guard my bees against infection by foul brood, I take $\frac{1}{4}$ gallon rain water, add to it a teaspoonful of unrefined carbolic acid, and stir it. With a brush, dipped in this solution, I wash the bottom-boards every spring, after the first cleansing flight. By doing this I destroy not only the germs of foul brood, but also the eggs of bee-lice and wax-moth which may be there. In badly infected apiaries, I found now and then some traces of foul brood in some of my colonies. Then I applied such a washing every eight days. The steam of this solution disinfected the bees, the food, and the cells. Now and then I examine the brood-combs of a suspicious colony, and when I see that there are many empty cells which I had seen some eight days before filled with eggs or larvæ, I am sure I have before me the first traces of foul brood. The bees, in helping themselves, had borne out the dead larvæ. Then, among the capped brood are to be seen many empty cells. Should I find, besides this, some sunken cells, and, after opening them, that brownish, tough matter in them, I spray such combs besides washing the bottom-boards by means of a "refraicheur," with a warm solution of four or five drops of my carbolic acid to a teacup of water, thoroughly mixed up in a bottle. This does no harm to the open or sealed brood. Besides this treatment I feed now and then such infected colonies with sugar syrup and add to a teacupful of the food three or four drops of my carbolic acid.

Colonies badly infected with foul brood I treat in the following manner: At a time when the bees will build comb I brush them upon starters in clean hives, wash the bottom-boards, and feed the bees with those solutions of food I have mentioned above. I have found out that starters are better than foundations. I give only four or five frames with starters according to the size of the swarm; and later, before the combs are finished; and, further, only foundations. The combs of the colonies I render part in wax and part are disinfected. Out of some of the badly infected colonies I hunt the queen. When all the brood is emerged from the sound cells, I brush also the bees upon starters; or if the bees do not build combs, from want of a honey-flow, upon comb foundation or disinfected

combs. Later in the season, when comb-building is out of the question, I unqueen the colonies and unite the bees, after all brood is emerged, with those I had brushed upon starters. Then the combs are disinfected. This I do in the following manner: At first I uncapped the cells, then I lay one frame after the other in a vessel filled with a solution such as I use for washing—perhaps a little stronger. The comb floats on the solution. Now I take a hand-syringe and squirt the solution with all my force into the cells to fill them, first on one side, then on the other. This is necessary, as otherwise the cells will not be filled to the bottom; the foul-broody matter will not give way, and the solution will not penetrate it. If all cells on both sides are well filled, then I extract the solution by means of an extractor, or by jerking the combs, and then hang them up to dry. After from eight to fourteen days in the open air, when they do not smell any more of carbolic acid, I use them as I would any other good combs.

The infected hives were also washed inward thoroughly with the washing solution, and, after laying two or three weeks in the open air, were used as new ones.

I am so very cautious in this matter that I wash the inside of every hive in the spring, except the new ones, with my disinfectant, before I put in a new colony. I need not say that all the tools used by infected colonies must be disinfected; also, that one must wash his hands after he has had to do with infected bees.

I know, however, that American bee-keepers do not have much confidence in the carbolic-acid cure of foul brood; but it is a question whether they treated their sick colonies with a remedy that is composed of and used in my way.

If it is true, what Fulde says about lysol, and if he is not misled, as are so many others who recommend foul-brood remedies, then lysol will surpass the unrefined carbolic acid as a disinfectant for foul brood, especially as it is employed with less labor and cost. On the other hand, if lysol does not prove to be such a remedy as is claimed, then I will use the unrefined carbolic acid in my way, as I have done till now, which has saved me from any loss by foul brood under dangerous circumstances.

Lysol consists of cresylic acid made soluble in water by a patented process, by means of saponification. It is a powerful disinfectant and antiseptic, and is largely in use in the hospitals of the Old World as a substitute for the less active but highly poisonous carbolic acid. It is further much employed in horticulture, where it has proved, in weak solutions, a very active remedy against vermin and parasites of all kinds. It is manufactured by Schülke & Mayr, Hamburg, and sold by their general agents for the United States, Lehn & Fink, 128 William Street, New York. It is put up in 1-lb. bottles, at 60 cents.

Wilsnack, Germany, March 9, 1895.

BEE-KEEPING IN CUBA.

60,000 LBS. HONEY PER YEAR, AND LOOKING TOWARD A QUARTER OF A MILLION; FOUL BROOD IN CUBA INCURABLE.

By W. W. Somerford.

Mr. Root:—In your footnote, Jan. 15, to Mr. Fred L. Craycraft's letter from Cuba, you say some of your readers would perhaps like to view some pictures of Cuban shed or house apiaries.

No. 1 is a picture of a part of the main shed that covers Mr. A. W. Osburn's 700 hives that

with his record-book of queens, for he believes in keeping up with them closely, and breeding queens only that "give results" in the way of honey-gathering. Hanging from the plate of the shed you will see scores of Miller feeders, which are used to advantage during the rainy season only. His honey-carts you will also see in the main alley between the rows of hives. The eaves of the shed come down so near the ground, and guava-bushes grow up so thick and close, that bees hardly ever sting a person while working under the roof, and are not much inclined to rob. You may ask why the bush-



FIG. 1.—A SHEDDED APIARY IN CUBA; A. W. OSBURN IN THE FOREGROUND.

are all under one roof—twelve miles west of Havana, near the little town of Puntabrava. Fully 17,000 square feet of tile and corrugated iron roofing is required to cover the apiary, one main shed running straight up the hill 300 ft., crossed by two others of about the same length, all opening into or joining the main shed, thus making all conveniently situated up the hill from the honey-house and that big steam honey-extractor.

Mr. Osburn uses a honey-cart that holds 75 or more combs at a time, and it is a downhill pull to his honey-house; so, hauling in his tons of honey is only fun for his son Harry, who is an expert in all the branches of the industry, having been raised from childhood in an apiary, and continually among the bees, for his father has for years been one of the largest honey-producers on the island, or anywhere else, for that matter. His average crop is about 60,000 lbs. annually, which he intends, if honey goes *much lower*, to increase to a "quarter of a million" per annum.

You can, as usual, see Mr. O. at his desk,

es are not cut away. Because they save honey, or the consumption of honey, by keeping the bees quiet during the long hot summer days, which is very essential in hot climates; for hives well shaded will have plenty of stores, while those in the sun will be starving.

Picture No. 2 is an interior view of the Casanova apiary, situated 21 miles east of Havana, and at present in charge of my brother, Fred O. Somerford, who has resided in Cuba over four years, continually among the bees, and has had, I presume, as much experience with foul brood as any one during the past four years, never being without it, scarcely, during the whole time. He, like Mr. Taylor, has concluded that it can be transmitted by foundation made of foul-brood combs.

Mr. A. W. Osburn, who has had varied experiences with the disease in California as well as in Cuba, thinks, like myself, that foul brood in a hot climate, and in large apiaries, is something too progressive for any remedy yet known to the fraternity. I have, after reading all the fossil works on the subject, and experimenting

for three years with various remedies, such as phenol, starvation, melting up all combs, scalding hives, killing queens, caging all queens 21 days to stop breeding for a time, while new combs were being built out, come to the conclusion that a new and more effectual remedy will have to come along before much foul brood in the tropics is eradicated except by total annihilation, which surely follows if the disease is not checked each year by melting all combs and putting the bees on new foundation.

I have lost 250 colonies by the disease—worth in Cuba not less than \$1000, and all my neigh-

never uses German script, but plain English letters, so his writing is read as easily as the printed page. But here's his letter, which loses by the translation:

My experience agrees with yours in the matters you mention, except the case in which you saw a queen kill a worker. To balance that, I once had a young queen sting me, which I had taken out of an after-swarm, and held in my closed hand. The sting did not remain in the flesh, and it was less painful than that of a worker. Since then I have had in my hand thousands of queens young and old, but have never again been stung by one.



FIG. 2.—CASANOVA APIARY, CUBA.

bors around have shared my fate, or their bees have.

Navasota, Tex. (at present).

BEE-KEEPERS' ASSOCIATIONS IN GERMANY.

WHY THEIR MEMBERSHIPS ARE SO LARGE.

By Dr. C. C. Miller.

I have a letter which I esteem very highly, not only because it clears up a matter concerning which I have for a long time been curious—the reason why the Germans have such large bee-conventions—but also because it comes from one whom I am proud to number among my friends, the able editor of the *Deutsche Illustrierte Bienenzeitung* (German Illustrated Bee Journal), who is already well known to the readers of GLEANINGS through his contributions to its pages. I wish I could show to all of you his writing. Although past his threescore and ten, the address on the envelope would easily be taken for copper-plate. Although his letters are in the German language, in pity for my lack of familiarity therewith he

I have read in GLEANINGS for January 1 your statement concerning the number of members of the German Central Association, as also the remark of Ernest Root. Now I will impart to you the secret why it happens that the Centralverein (Central Association) has such a large membership, and if you wish you can betray the secret to Ernest.

In thickly populated Germany there are ministers and teachers who form about them little Vereine (societies or associations) whose members generally meet monthly or quarterly. Every one who has bees, even if only a couple of colonies, allows himself to be enrolled, without attending each meeting that is appointed. These small Vereine obtain at a very low price one of the reasonable bee-journals, as the *Centralblatt* or *Leipziger Bienenzeitung* for 1 mark (25c), or 65 pfennig (about 13c) a year. Many of these small Vereine have their own bee-journals, which then cost more, but never more than 50 cents. These small Vereine (Special-Vereine) are united to the Centralvereine of the different provinces or small states. For example, in Mark, my province of the kingdom of Prussia, the Markische Centralverein consists of 77 Specialvereine, with 1539 members, who, in the fall of 1894, put into winter quarters 15,000 colonies.

Now comes, however, the principal thing, which

explains all. All the Centralvereine receive a grant or allowance from the government yearly, and all the members share alike in this grant. Whoever is not in a Verein has no share in the money which the government grants yearly. Many of the Centralvereine receive so large an allowance that they deliver to their members one or more bee-journals free.

At the large conventions, where all the Centralvereine come together, extra money comes from the government, and even from private sources, from which premiums are offered, transportation paid or objects for exhibition, and often free railway passage, as well as payment for articles damaged or lost in transit. In Vienna, at the convention which I reported in GLEANINGS, it went even so far that the members had their common meals, including wine, free. "There's the rub," says Hamlet! Whoever is not a member of a Verein must wipe his mouth—that is, he gets nothing of all this.

I once traveled to a convention of this kind with a man who admitted that he no longer kept bees, but had himself enrolled in a Verein, and paid his dues of 30 cents, for which he received the bee-journal and the opportunity of visiting strange places. In our deliberations at Kiel he took no part, but probably in all the favors, visit to the museum, man-of-war, etc.

Yes, friend Miller, you must set all sail to procure such a cement in your States, which will not only secure many members, but also hold them together.

Freundlich gruessend,

C. J. H. GRAVENHORST.

For one, I feel like giving a vote of thanks for this information. Just the thing we needed. Now, can any thing of the kind be done in this country? The answer has always been that distances are too great and bee-keepers too scattered. Right there is the rock on which we have always split, depending for membership solely on those who could attend the meeting. You will readily see that not all the members attend the German conventions; but the inducements are sufficient to make a man keep up his membership, even if he never attended a single meeting. So while our great distances may count against the largest attendance at conventions, it counts for nothing whatever against a large membership.

The only thing needed, then, to bring us up on a level with Germany, and, for that matter, with Canada, is to get the grant from the public treasury. I think I hear some one say, "Oh! there's no use. We can't get any thing of the kind." How do you know we can't? I feel quite sanguine that there's just as much enterprise here as abroad; and if we go at it in the right way we can get all the help we need. Indeed, something has already been done. The bee-keepers of Illinois succeeded in getting, at least for one year, an appropriation of \$500. It was given to the State society, with the express stipulation that it should be used to spread information—in other words, to publish their report. Good was done by it; but it had very little effect in the direction of increasing membership. Probably a large number had

the benefit of the reports who were never members of the society, and, under existing circumstances, never will be. With a large membership it would be much easier to get an appropriation from the State legislature.

Now, suppose the Illinois society receives another grant of \$500; how would it do for them to profit by the example of their foreign brethren? I think it could be so managed as to make the society five or ten times as large, and still keep within the restriction that the money must be used for spreading information. Let's figure. Suppose the society make arrangements to furnish free to its members a bee-journal, and on any one of them it could probably get special rates so that, at the highest, it would pay not more than 80 cents per copy, the journal publishing in full the society's report. Now, suppose the membership-fee be placed at 25 or 50 cents. Does any one doubt that a large number would be induced to join who are not now members, and many who now take no bee-paper would do so by paying to the society less than the regular subscription price of the paper, without saying any thing about the privilege of membership? Let's see how the thing would come out, if the annual fee be placed at 25 cents. Allow \$50 to be reserved for expenses, and we have \$450 left. Each member pays in 25 cents, and the society takes that, and 55 cents more, to make out the 80 cents it must pay for his paper. It seems clear that the society can afford to do that just as many times as 55 cents is contained in the \$450. If I figure straight, that would make 818 members. Could not get 818? Well, then it could reduce the fee, making it only 10 cents per member, and take in 642 members. There's a power in numbers, and I believe the thing to work for lies in that direction. The fact that such a thing is done in one State will give strong leverage to work upon the legislature of another State. Don't you believe that, if bee-keepers push as they might, in a few years there might be large societies in each State?

Marengo, Ill.

[We are always glad to get anything from the pen of that practical German bee-keeper and bee-writer, C. J. H. Gravenhorst. If our readers do not know him through his own most excellent journal, they surely do know him to some extent from his writings in our journal.]

On account of the magnificent (geographical) distances, I am afraid, as you suggest, we shall never be able to see a complete realization of such a plan as is now in vogue in Germany. Our country is made of so many little countries, and so much has to be done through State appropriations, that it is very difficult to get any thing from the national government to help all bee-keepers alike. Instead of concentrating any great effort on any particular State, I should be more in favor of getting an appropriation, if times ever do get better, from the powers that be, at Washington. A State association, no matter how flourishing, would never be more than a State organization.—ED.]



EARLY SWARMS.

Question.—I am desirous of securing early swarms. Would there be a gain or loss along this line by putting on surplus cases of sections?

Answer.—It might be safe to say that, taking early swarms into consideration, there would be a disadvantage or tendency toward a few days' delay, if the surplus arrangement is put upon the hive before the bees swarm. Heat is one of the elements in forcing early swarms; hence, by putting on the surplus arrangement before the hive is crowded with bees, much of the heat from the colony will be distributed up among the sections, which would retard swarming, as it also does brood-rearing. If early swarms are what we *must* have, even if we have to sacrifice other values, then it is best to keep the top of the hive as close as possible, and stimulate the bees by feeding them or otherwise. Later on, when the hive becomes crowded with bees, and preparations for swarming begun, the placing-on of sections may not delay it. But if we count surplus honey a gain, then I can conceive where there would be a gain in putting on sections as soon as our main honey-harvest opened, as it is often the case that, with all our crowding and desiring early swarms, the bees will obstinately refuse to swarm, when we not only fail to accomplish what we are after, but lose a part or all of the honey crop we might have had if we had put on the sections at the proper time. I verily believe, that, during the past, when conducting experiments along this line, I have sustained more loss by trying to force swarms by crowding the bees than by giving them too much room. Hence my advice of late years has been to place the sections on the hives at the proper time, no matter whether swarming is desired or otherwise, resting assured that, with the majority of bee-keepers, more swarms will issue, when doing our best to secure a good crop of section honey, than we could expect under any conditions, and fully enough to satisfy any reasonable person.

WHEN TO PUT ON SECTIONS.

Question.—When is the proper time to put on sections for surplus?

Answer.—No set time as to month or day can be given for putting on sections in any locality, as all depends on the strength of colony and the time of the opening of the blossoms which give us our main honey crop, both of which are advanced or retarded in accord with the earliness or lateness of the season. Some say, put on all surplus arrangements as soon as the first buds giving our surplus honey are about bursting open, no matter about the strength of the colo-

nies. Others tell us to put on sections as soon as the colonies are strong enough, without any reference to the time of the blooming of the flowers, they saying, "It is a mistake to put off putting on sections till the honey harvest is upon the bees, as they will sometimes waste time looking through the surplus apartment before going to work." I can not agree with either of the above, as it savors too much of the old "luck in bee-keeping" we used to hear so much about, and does not give credit to any apiarist of managing his business intelligently. After years of experimenting, to know just when the sections should be placed upon the hive, I have arrived at this: Wait about putting the sections on till the hive becomes populous with bees and the combs well filled with brood, and till the bees are securing enough honey from the fields to begin to lengthen the cells along the tops of the combs next the top-bars of the frames, or build little bits of comb here and there about the hive. When we see this it is time to put on the sections; for if we delay longer we are sure to lose in time and honey; while if we place sections on the hive, no matter how populous with bees it may be, before any honey is coming in from the fields, we shall lose by the bees gnawing or tearing down more or less of the foundation placed in the sections. If we use only starters of natural comb in our sections, then they can be placed on the hive as soon as the colonies are strong in bees and brood, if we so desire; but even then I can see nothing gained over the other, unless we are liable to be crowded for time at the *right* time for putting them on. If my memory serves me rightly, Dr. Miller has put forth the claim that it is only after the honey season is over that the bees gnaw holes in and tear down foundation, which may be correct with him in his locality; but with me bees always mutilate foundation in the sections, more or less, at any time of the year when an abundance of numbers, or hot weather, crowds them into the sections at a time when there is no honey coming in. I had scores of sections one season in which all the upper half of the foundation was gnawed away but a little strip or neck about $\frac{3}{8}$ to $\frac{1}{2}$ of an inch in width; and when honey began to come in, and the foundation was worked out, it twisted and turned to such an extent that it was attached to the separators on either side, thus spoiling such sections for market when they came to be removed, as the honey would be set to running in getting the combs loose from the sections.

WHEN TO PUT ON SECTIONS ON NEW SWARMS.

Question.—When is it best to put on sections on a hive having a new swarm?

Answer.—That will depend somewhat on how you work. If your swarm is large, and you have full sheets of foundation in the brood-frames, it is well to place a case of sections (and they should also be filled with foundation)

right on the hive when the swarm is run in; but should you fill the sections with foundation, and use only starters in the brood-frames the queen would be likely to go into the sections to deposit her first eggs unless a queen-excluder were used, in which case she could not get into the sections, no matter how the hive was arranged below. With nothing but starters in the brood-frames, and no queen-excluder used, then it is best to wait about putting on sections till the queen has commenced laying in the new comb built below, when the sections can be put on without fear of brood in them. The plan I consider the best, and the one I use more largely than any other, is, to contract the brood-chamber to two-thirds its usual size, using only frames having starters in them of foundation about half an inch wide, on top of which is placed a queen-excluding honey-board. The new hive thus prepared is set on the stand of the parent colony while the swarm is out, and the sections from the removed hive placed over the queen-excluder on the new, when the swarm is hived in this new hive on the old stand, when the old or parent colony is placed at some distance away on a new stand which we wish it to occupy. In this way work does not stop in the sections at all, and we, as a rule, get the frames in the contracted brood-chamber filled with nice straight worker combs, at a less cost to us than the purchasing of foundation and fitting it into wired frames.



THE DIVISIBLE-BROOD-CHAMBER HIVE.

THE PRINCIPLES OF THE HEDDON HIVE SET FORTH BY AN ADMIRER OF HIS SYSTEM.

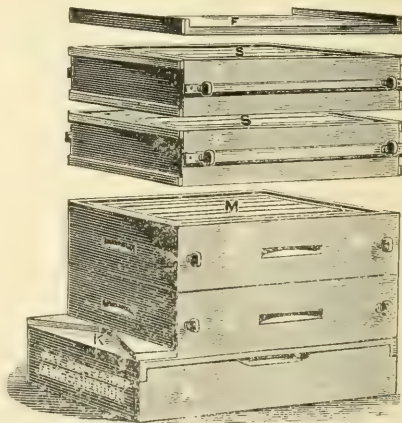
By Honey Producer.

In all the arts with which we have to do, there are certain governing principles or laws peculiar to each, with which we have to comply if we wish to accomplish a certain definite result; and, reasoning at least from analogy, honey-production and hive-construction should be, and are, no exception to the rule. However, as with the farmer, so also with the bee-keeper, there are climatic and other conditions or principles over which he has no control, and which affect the obtaining of the object he has in view, thus giving varying results, no matter how correctly and effectively he has applied those which he can control.

The honey-producer applies the principles of his art largely through his hive, which fact shows its important relation to the cost of his product. Like other producers, his first object

is to obtain his product at the least cost possible. Where this is accomplished, his hive will be so constructed, and its manipulation such that he applies the principles of his art to each individual colony, 1, with the greatest effectiveness; and, 2, with the least expenditure of labor. However, be our hive construction and manipulation never so good, we can not force the productiveness of any colony beyond the limit of its ability, nor, on the other hand, lessen the labor of manipulation beyond the point of profitable effectiveness. We see, therefore, that, in order to be the most effective, these two elements must be made as weighty as possible, and so adjusted in our hive that it will exactly balance upon its fulcrum, honey-production.

It must also be remembered that the natural principles which govern the development of the honey gathering and storing instinct of our bees can not be changed, but that the methods of applying them can, and that they either hinder or help the effectiveness of these principles. That the sectional hive and system, from which we can not with justice separate the name of James Heddon, its inventor and patentee, requires, in practically applying principles, the least known amount of labor, does not seem to have been generally disputed, except by some who, for some cause, have been troubled with brace-combs between the sections; but that it is also pre-eminently adapted to the *most effective* application of these same principles to the colony it contains, and hence to the securing of the *greatest* amount of honey from each individual colony, is ignored by a few, disputed by some, doubted by others, and entirely overlooked by many.



The cut is a good representation of this hive. *A* is the stand, *K* the loose bottom-board and two loose entrance-blocks; *B* and *H* are shallow brood-cases, one or more of which are used for a brood-chamber. Each is of five Langstroth-frame comb capacity, and contains eight shallow combs in close-fitting end-frames, which

also closely fit their case endwise, and are supported on tin rests, and held tightly together and securely in position by a thumbscrew at either end, which arrangement allows the cases to be handled in any position as one solid whole, and yet, by loosening the thumbscrews, it leaves the frames readily removable. *M* should be the queen and brace-comb excluder, but is not shown and is generally wrongly named "honey-board." *D* and *E* are wide-frame surplus-cases for comb honey. These have the same kind of frame adjustment as the brood-cases which are used for surplus-cases when extracted honey is wanted. *F* is the cover. Besides, there is the escape and board which are not shown, and without which the hive is incomplete, although not a part of the invention. Each brood-case, outside measure, is $19\frac{1}{8}$ inches long, by 13 inches wide, and $5\frac{1}{16}$ inches deep. The wide-frame surplus-cases are the same length and breadth, but only $5\frac{1}{16}$ inches deep. Considering, now, the size, shape, lightness, and construction of the parts, you will see how admirably adapted it is to its system of case (sometimes called hive) manipulation, no matter whether of the brood or surplus apartments, or these as used in connection with each other or any of the other parts of the hive, or of the hive as a whole, and for which it is intended and expressly built.

When left to themselves, and under natural conditions, bees will store a little of their honey about the sides of their brood-nest; but the great bulk of it will be above. Besides, they store it as near the top of their hive as possible, and for consumption use that lowest down and nearest the brood. In breeding, the upper part of the brood-nest is kept immediately next to the honey. When the upper brood hatches, and the honey-flow is sufficient, the bees will fill with honey the cells out of which it hatched, thus continually working to connect the brood and honey by filling with honey the *shallow* space continually being created between them. From these natural conditions we learn some important principles as they relate to a hive's construction and its manipulation.

1. That surplus cases should be added above the brood-nest, and hence our hives built for top storage.

2. That we should not compel our bees to travel over honey at the top of the brood-nest in order to store their honey, and hence the division between the surplus-apartment of our hives and the brood-chamber should come right where the brood and honey meet. In other words, the construction of our hives, and management, should be such that there will be no honey, or as little as practicable, at the top of the brood-chamber when we wish the bees to store in the surplus-cases above it.

3. That brood should extend under the whole bottom surface of the surplus-cases; hence surplus-cases should not extend endwise or side-wise beyond the brood-chamber; neither should

there be combs of honey beneath them, at the sides of the brood-chamber. It is a fact, that a brood-chamber of sufficient capacity, and more than eight combs wide, is quite liable to have its outside combs filled with honey; hence a brood-chamber should not be more than eight combs wide.

4. From principles two and three, we see that any hive or system which attempts to fill the brood-chamber with honey for winter stores, either before or while the honey-harvest is on, does so at the expense of important conditions necessary to the development of the strongest honey gathering and storing instinct of the bees.

5. That when one or more surplus-cases have been filled sufficiently to justify the addition of another, it should be placed right between the brood and honey already stored, and, as might also be inferred, and which experiment proves true, the shallower the opening which we make for storage between the brood and the honey already stored, the stronger the instinct of the bees to fill it. It is also much better that the first surplus-case which is put on be shallow rather than deep, and of large capacity.

6. A little reflection shows, and experience proves it true, that the deeper the brood-chamber the greater the liability to have honey stored at the top of it by the bees, which they will have to traverse to store honey in the surplus-cases, greatly lessening their energy.

7. A little mathematical calculation shows, too, that, the deeper the brood-chamber, the less surface there can be above it for top storage, and hence the deeper will the surplus-cases have to be in order to have sufficient capacity, in adding which the deeper will be the opening made between the brood and honey, thereby again lessening the instinct of our bees to fill this space *promptly*.

8. It is a fact that, when a brood-chamber is larger than a queen can keep filled with brood, the remaining space will be filled with honey. We at once see, therefore, that such is a mistake, where we wish a brood-chamber filled with brood, and devoid of honey.

You will now look at the cut, carefully study the hive, its shape, construction, and size of the different parts, and connect therewith the following manipulation, and carefully compare any and all of its bearings with the above principles.

Suppose our colonies are in normal condition, and ready for the surplus-cases at the opening of the summer honey-flow. When we put on the first case we will interchange the two brood-cases—that is, place the upper one below and the lower one above, and then put on the honey-board and surplus-case. When this *shallow* case is sufficiently filled, we will add another on top of the honey-board and beneath it, and so on with others as required upon the tiering-up plan. You will notice now, 1, that the brood-nest is flat on top instead of rounding;

2, the brood extends to the very top of the brood-chamber; 3, that the brood-nest was divided where it was largest across, and thereby the brood was, so to speak, spread out underneath the surplus-cases; 4, that placing the honey where the bees want brood, induces them to remove it and put brood in its place, thus filling the brood-chamber with brood; 5, that, in adding surplus-cases, we continually create a shallow opening between the brood and honey stored.

The swarms we hive in one brood-case; place them upon the stand of the parent colony, and give them the unfinished surplus from the same, and add an empty case, if needed. From this arrangement of the hive, you will notice the following conditions which now exist: 1, the brood-chamber will be filled with brood, because of its small capacity; 2, brood will extend to the top bars, because of its shallowness; 3, when filled with brood, it will extend under the whole bottom surface of the surplus-cases; 4, the whole body or bulk of the brood is nearer to the surplus-cases than it can be brought by any method of narrowing the brood-chamber to contract it; and, also, the bees are in a more compact form to work; 5, that a shallow opening between the honey stored and the brood-chamber is established for storage.

In my opinion, with no other hive or system that I know of can all the principles of honey-production, as mentioned, be so easily and perfectly applied to our colonies, either before or after swarming. "But," says some one, "there are other things to be taken into consideration if we are to be successful." True; but can the most indulgent of editors be expected to permit the space?

Just as I finished this article, GLEANINGS came to hand; and you may guess of my surprise upon finding another claiming nearly all of the essential features of Mr. Heddon's hive and system. However, it is a pretty late day to succeed in this kind of work.

[As there are some who think the divisible-brood-chamber hive is the coming system, I have asked one of them (a user of the Heddon, and one who thinks there is nothing like it) to write it up for the Trade Notes department, and this he has done in the foregoing. Along in the same mail came, unsolicited, an article from Ezra G. Smith, also an admirer of the Heddon hive. He writes of it as follows:]

I want to say something about Heddon's hive. You say in GLEANINGS, Mar. 15, that two-story Langstroth hives were used years ago. That is so; they were used, but not as divisible brood-chambers. We had no way to restrict the queen. It was intended and advertised, sold, and used as a single-brood-chamber hive. When the queen went above, it was not because we wanted her to do that, but because we could not help it. I have used the Quinby, Langstroth (Hoffman frame) hives; have used the Heddon hive five or six years; and if I

had to go back to the other hive I would quit the business. I can take care of my bees with one-half the work that I formerly had to lay out on them. I think the Heddon hive is as much ahead of the other hives as those hives are ahead of the old box hive.

EZRA G. SMITH.

Manchester, N. Y., Mar. 19.

[I shall endeavor, so far as it is possible, to make the Trade Notes department represent fairly the views of our subscribers along the line of practical bee-hive construction. While I understand that there are some who like the Heddon system, I am also told that there are others who have tried it and abandoned it. Now let us hear from these latter, and wherein the multiple chamber is not a success.

I am not seeking this information pro and con because we desire, or may desire, to go into the extensive manufacture of Heddon's hive under royalty, but only to get at the truth. It is true we did write to Mr. Heddon, asking royalty price per hive; but it was only that we might be in a position to supply such hives, in a limited way, when ordered, and not that we considered it the best hive, as Mr. Heddon seems to think. At present we are satisfied with what is common property, viz., the Langstroth system. On the other hand, we shall endeavor to hold ourselves open to intelligent conviction.—ED.]



CATNIP HONEY, A BARREL OR MORE.

In 1892 one extracting, of 500 to 700 lbs., was either pure catnip or else so strongly impregnated with that flavor that no other could be detected. Besides, I could not find that they were working on anything else in particular at the time. Once or twice before when I had not many bees I secured some. But that year the bees fairly swarmed on it, as they sometimes do on basswood.

Sang Run, Md., Feb. 25. C. A. MONTAGUE.

PROPOLIS DEPOSITED IN A LIQUID STATE.

Before the introduction of the movable frame I used the Miner cross-bar hive. A piece of thin cotton cloth was spread over the bars when a swarm was hived, to prevent the bees from attaching their combs to the loose cover between them. This was allowed to remain two or three days, and then removed. On removal it was generally found to be almost or quite saturated with liquid propolis, and was as limp as if wet with water. This and some other circumstances have led me to believe that bees use propolis in only the liquid form. Indeed, it is difficult to conceive how they can handle it in a semi-solid state. I have often seen them loading their pollen-baskets with the solid material; but I think they liquefy it before using it. With this liquid they varnish their combs, and all other surfaces within their hives, and wherever else they may cluster.

That motion called "raking," so puzzling to many of us, is, I think, simply a part of their manner of during this job. A. S. MARTIN.
Roanoke, Va., March 4.

[It can scarcely be doubted that propolis is put on in a liquid, or partly liquid, state. The bees secrete some sort of fluid that seems to cut it enough to render it plastic and liquid. I can hardly think that the "raking motion" has anything to do with propolis. The motion is witnessed only at the entrances; at least, I do not remember to have seen it elsewhere. At all events, there is no sign of propolis where they have been raking; but I do find particles of paint removed.—ED.]

GOOD WINTERING SO FAR.

I have been much pleased to-day, Feb. 19. As I was sitting in the office a hen cackled in the workshop, and I opened the back door to see what was the matter. The sound that struck my ears caused an alarm. I thought robbers were at work in the apiary, and hurried out. A glad surprise met me. It seemed that all the bees from every hive were in the air giving one glad hallelujah for a free foot, or, rather, a free wing. I went to the hives, and pulled away the blocks which some of them had in front, and they had a general house-cleaning. I think there were not more than 100 or 150 dead bees thrown out of each hive, notwithstanding the severe zero weather and the snow 15 or 18 inches deep for the last three or four weeks. They were in single-walled Dovetailed hives, without a particle of protection; for if they can not live in such hives through our winters, only 6 below zero, I want to know it before I get any deeper in the business.

Port Norris, N. J., Feb. 19. J. R. PRICHARD.

DANGER IN SULPHURING COMB HONEY; A BED-BUG STORY.

I should like to caution beginners in the bee-business about using sulphur smoke on comb honey to destroy miller-worms, as directed by Mr. Doolittle. Last fall I sold my honey to Byron Walker, of Evart, Mich. He directed me (after grading up the honey) to burn sulphur in the room; to cork it up around the windows, and burn a pound of it. Inclosed I will send you a piece of wood showing what sulphur smoke will do. I had to put more than 100 lbs., out of 1400 lbs., that Mr. W. had graded A, into grade B; and some of grade B was not fit to send to market at all—not that Mr. Walker would not have been obliged to take it, but I could not afford to sign my name to it. After I wrote him about it he said he had tried burning sulphur on old comb only, but got his authority from Mr. Doolittle. By the way, Mr. Walker buys a very large amount of honey every fall. He is a square man to deal with. His own honey amounted to about 22,000 lbs., counting in what he got from one apiary that he has in Wisconsin. Now, I am very much interested in Mr. Doolittle's writings, and have

gained some very valuable pointers from his writings, and believe he is one of the safest guides in the United States.

Mt. Pleasant, Mich.

H. S. WHEELER.

[The sample of wood sent is considerably discolored on one end. I think Doolittle is all right, and that the trouble was in your giving the honey too much sulphuring. Too long a sulphuring will turn every thing yellow, as I happen to know. Let me give an illustration: Years ago, when I slept in the shop as a sort of "night watch," I discovered, much to my dismay and sorrow one morning, that bedbugs—yes, real live crawling ones—had gotten into our little room. Now, you know I couldn't stand that, so I sulphured the room a little, including its contents. But it didn't kill 'em. "Next time I'll kill 'em sure," I said, and accordingly built up a big sulphur fire in a large kettle, and shut the room up tight for three or four hours. Did it kill the bugs? Indeed it did, and, more than that, the side walls of the room were covered with a yellow sulphur deposit; in fact, every thing was covered. There! don't tell any one I've slept with bedbugs.—ED.]

THE FOOD SUPPLY OF FLORIDA.

This is the fourth winter that I have spent in Florida, and I've watched with much interest to see where the food-supply of the inhabitants came from. In mingling with them on sailing excursions I took note of their lunches, and I invariably discovered food obtained from the stores. I can speak intelligently of only this portion of the State. Plums, peaches, pears, mulberries, dewberries, nectarines, and scuppernon grapes grow in great profusion. Christmas day, oranges and lemons amid the green leaves were a thing of beauty; but now, not a green leaf decorates the trees. This is a new town, settled by Northern people, and fruit-trees are too small to bear much.

In the issue of GLEANINGS for Feb. 15, there is a good representation of the head of saw-palmetto, under the large letters "red cabbage-palmetto." In looking at it I wondered where the head of cabbage was, and I failed to discover it. I think what is said of the edible part is rather misleading. I've questioned many persons who have lived among it all their lives, and they tell me that the cabbage is the bud; and in order to make it palatable it must be parboiled to remove the bitter. I would obtain one of these cabbage-head if I did not consider it sacrilege to destroy one of these noble trees to obtain a bud of about the size of my fist, which would require a great stretch of imagination to think was cabbage, which can be raised in a short time, of much finer quality. If I'm not mistaken, the name is not derived from this bud, but from the imbrication of the leaves. If you look at the trunk of one of these trees you will see the bark imbricated, overlapping each other like the leaves of cabbage.

Most of the native women know how to make palmetto hats. They take the center leaf while it is folded together, before it spreads

out, and it does not harm the tree. These hats are very comfortable and durable.

Palmetto logs are used for building piers, as they resist the ravages of time and corroding worms more than other wood.

St. Andrew's Bay, Fla. MRS. L. HARRISON.



SIXTEEN extra pages this time, instead of eight.

ADVERTISERS who see fit to patronize us now ought to get good returns. We shall be publishing, from now on, until the early part of summer, extra editions. The present issue reaches 15,000 copies, and it appears evident that we shall have to print extra copies, for a time at least, to keep pace with the demand.

In speaking of winter losses in his vicinity, Mr. H. R. Boardman, of East Townsend, O., at the end of a letter, writes:

Of all those in my vicinity who have kept bees, and have taken no bee-papers, I can not think of one who has not failed; while those who have taken a journal have nearly all succeeded. I think this needs no comment.

H. R. BOARDMAN.

East Townsend, O., March 27.

WE are giving our readers now a very large amount of reading-matter—perhaps more than many of them will be able to cover; but I appreciate the fact that what may be interesting to one may not be to another, and I try, therefore, to give a wide range in apicultural lore. I am sorry that so many unused manuscripts are now on hand to which I fear I shall never be able to give a place in our columns; but I am striving earnestly to give you the very best we have, properly seasoned and dished up.

A VERY tall compliment was paid us by Mr. D. M. McGaffick, who gave us a call, also of the United States mail service, from Pittsburg to Chicago. Said he, "Of the tons and tons of mail matter that I handle, that which comes from the Home of the Honey-bees is the nicest."

"Why?" said I.

"Because your packages are always nicely wrapped, and the *county* is invariably supplied. If manufacturers only appreciated the importance of this one item they would greatly facilitate the delivery of their mail matter." Here is a point for our subscribers.

THE question is asked in the *American Bee Journal*, "Question-box" department, whether it is advisable to spread brood. Of the 23 who answer, all advise against it excepting Mrs.

Atchley, who speaks for it. For her locality—the extreme southern point of Texas—there is no danger; but experience seems to show that, when practiced in the spring, usually more harm is done than good. If the experts are shy of it, the beginner had better let it entirely alone. I have spread brood, however, in early summer, with great advantage; for I was after increase with a vengeance, and got it. I increased some fifteen colonies, fair to middling, up to 80 good ones, by the first of September. Of course, to do this I had also to divide.

MR. S. E. CORWIN, of Sarasota, Fla., seeing the recent article on candied honey, forwarded the following that he received from one of his old customers who, it appears, purchased honey of him seven or eight years ago:

Friend Corwin:—Do you remember the case of honey you sent up here while my father was sick, some seven or eight years ago? Well, I have three or four bottles of it now. I opened one night before last, and it was apparently just as good as when first received, and not at all candied.

Fall River, Mass.

CHAS. B. LUTHER.

I have long known that honey would keep almost indefinitely; but it is very seldom indeed—in fact, I do not remember to have seen an instance before—that pure honey had kept as long as this without candying. Can any of our subscribers trot out a better?

ADULTERATED FOUNDATION.

A FEW weeks ago we sent to Mr. O. O. Poppleton, of Potsdam, Fla., some small pieces of adulterated foundation, half ceresin and half beeswax. The amount was so small we were afraid that perhaps the experiment might not be satisfactory; but we had only a little of the ceresin wax on hand. Here is what he writes:

I mail you to-day those three pieces of foundation from adulterated wax you sent me to have drawn out by the bees. I don't think it will take more than a glance to show you that it's "no good." Had it shown no stretching when used in such small pieces, I should not have considered that an adequate test had been made of its value when used in full sheets; but if such small pieces will stretch, what would full sheets do? You will observe the sample of thick foundation has stretched less than the medium, and the medium less than the thin; but all entirely too much.

I suppose my extreme southern location, and our having a usually steady flow of honey all winter and spring makes it easier for us here to make any such experiments as this has been than almost anywhere else in the United States.

Potsdam, Fla., Mar. 27.

O. O. POPPLETON.

WE hope to get a larger quantity, and have the experiment tried by different bee-keepers—not that we have any desire to put such an article on the market, but only to prove more conclusively what our early experiments years ago seemed to demonstrate; viz., that pure beeswax gives altogether the best results in the

way of foundation. How any one can be satisfied with a half-and-half mixture, even at a reduced price, is beyond our comprehension.

THERE is talk in the *American Bee Journal* of reorganizing the old Northwestern Bee-keepers' Association. The old organization was a power for good, and would never have disbanded except that it was deemed advisable to concentrate its energy in the State association, having an annual appropriation of \$500.

FOUL-BROOD INSPECTOR WM. McEVoy, it appears, has done some pretty thorough work in eradicating foul brood in Ontario. If he continues in office (as we hope he will) the disease will soon be a thing of the past for Canada. Every State on this side should have at least a foul-brood law. While it is improbable that we should be able to get a State appropriation to defray the expense of an inspector, we should have the law, so that it may be used in case of emergency.

In our next issue, Trade Notes, Mr. Heddon and Mr. Danzenbaker will discuss further, in a friendly way, the patentability of divisible brood-chambers. Some interesting points will be brought out on the subject of patents in general, by both parties. I do not know to what extent this question will be interesting to our general readers; but unless they signify a general desire to have the subject continued, I believe it would be better to have it dropped with our May 1st number. As I have already said, we desire both parties to have a fair hearing. If they wish to continue it further, they can probably do so through the medium of Mr. Heddon's paper.

THE time has now arrived when we should be gathering our usual annual honey statistics, or, rather, statistics of winter losses. We desire every bee-keeper who will, upon receipt of this number, to send us, on a postal card, answers to these two questions: 1. What per cent of your own bees were lost during the past winter, up to the time of your writing? 2. What per cent were lost in your vicinity? In order to get the facts in time for our May 15th issue, it is absolutely necessary that you give this your attention at once. The more distant States, such as California and the like, do not have the winter problem to contend with; but we think the most of the others will be able to report so we can get something of an idea as to how bees wintered, by our May 1st issue. Do not pass the matter over, thinking somebody else will do it for you. We need reports from every one.

In another column, H. R. Boardman writes that he put out his bees on the 5th, from his bee-house, and reports "no loss, and condition perfect." I should like to know, just for the fun of it, whether he would winter as well in

Langstroth hives. If he will procure, say, a dozen colonies in such hives, with loose bottoms, we will pay the expense of transferring to his own hives if they do not winter as well. This is not a challenge to Mr. Boardman; but it might help to throw light upon a point concerning which there has been more or less guessing. For the present I can only say that, with his square and deep hives, he seems to winter better than his neighbors with the Langstroth. In fact, he appears to be the only man, so far as I know, who winters year after year with no loss. Years ago we gave a picture of "the man who never loses bees," and that was none other than our East Townsend friend.

WINTER losses throughout the country, so far as I can gather from the reports, will not be nearly as bad as I at one time feared. The heaviest losses seem to be among the careless bee-keepers—those who have a fashion of letting the bees take care of themselves, largely, or among those who, as Mr. Boardman himself says elsewhere, do not take any bee-paper. Our colonies at the basswood yard, all in one-story chaff hives or winter cases, wintered perfectly, so far as I could see when I went down a few days ago. A large part of their stores was sealed basswood honey that had been kept in combs stored away in stacked-up hives. Late in the fall these combs were distributed in some of the more needy colonies. In addition, we fed very little sugar syrup. Our home-yard loss will aggregate more than I stated in our last issue, from the fact that I supposed we had more colonies than we actually had. The corrected per cent of loss is 4.

DEAD-AIR SPACE HERMETICALLY SEALED, VS. PACKING-MATERIAL.

THE following short editorial is from the *Bee-keepers' Review*:

"Dead air is all right, providing you can get it in a space or compartment that is air-tight," so reads a sentence in an editorial in a late issue of GLEANINGS. I beg to differ. It makes no difference, if the space is between two walls that are hermetically sealed, if these walls are placed between two different temperatures, the air next the wall on the warm side will become warmed and will rise, while the air next the cool wall will become cooled and will settle; thus there will be a circulation inside of even an hermetically sealed space, that continually robs the warm wall of its heat and passes it over to the cold wall. The filling of this space with sawdust or chaff breaks up this circulation.

When I first read it over I was inclined to think Mr. Hutchinson was right and I wrong. Then it occurred that I had read recently in one of the mechanical journals that a steam-pipe incased tightly in wood, leaving an air-space of one to two inches around the pipe, was a better protector than a similar pipe similarly incased in wood, with packing-material occupying the air-space. I am sorry that I can not now refer to the authority; but a long series of

figures by the government inspector was produced to show this. And here is another illustration that means a good deal: Years ago the cylinders around steam-engines of the highest grades contained a casing of wood; and between the casing and the cylinder proper, packing-material; but latterly it has been found that a casing of either iron or wood, leaving a dead-air space of two or three inches, without any packing, gives the best results—that is, the least condensation. The point is right here: Packing-material itself becomes, to a greater or less extent, a conveyor of heat or cold. The better the material, the less it conveys. But the best non-conductor of all seems to be air, pure and simple. If this is correct, my original proposition is all right, friend H.; but dead air space in hive-construction is impracticable and out of the question, and we therefore have to resort to packing. It is true, you may say steam-pipes are usually covered with pipe-covering or plaster; but it is not always found practicable to make a wooden casing around a pipe air-tight; and, moreover, insurance companies do not recommend it. But my proposition was for a space hermetically sealed.

SHALL FOUNDATION BE EXCLUDED FROM THE MAILS?

As our readers know, we have for many years sent small quantities of comb foundation by mail to all parts of the United States, and there has never been any question till recently but that such matter was permissible in the mails. On the 15th of last March, Route Agent C. M. Cotterman, of the United States mail service, came across a package of foundation from us that, it seems, had come in contact with, or at least very near to, a coil of steam-pipe, and melted, leaving, as he said, little but the wrapper. In his opinion, this was not a proper subject to send through the mails, and so reported to headquarters. The matter was referred to our local postmaster, and by him to us. On the 25th of March we dictated a note stating that we had for 20 years been sending foundation by mail, and that no question had ever arisen as to whether it was legitimate mail matter. We sent a duplicate packet to the department, asking them to examine carefully the same, explaining that it was simply pure beeswax embossed with the impression of the base of the honey-cell. On the 28th of March we received the following, which settles the question, at least for the time being:

Mr. L. S. Smith, P. M., Medina, O.:—You can continue to accept and forward these packages. If we have further trouble with them it may be necessary to exclude them from the mails, but this office does not feel justified in doing so as yet. Section 322, Postal Laws and Regulations, 1893, prescribes that salves and ointments must be put up same as liquids, while hard candy, yeast cakes, and soap can be forwarded when simply wrapped in paper and enclosed in pasteboard or wooden boxes. Beeswax, while having some of the characteristics of both of

these classes, really belongs to neither, and I think we can give it the benefit of the doubt until it is demonstrated that further restrictions are necessary.

ALEX. GRANT,

Acting General Superintendent.

Washington, D. C., March 28.

It seems to me that comb foundation would pretty nearly come under the category of soap. It would not soil articles in the mail-pouch any more than that article, and its melting-point would be about the same. As it is, we do not see how the General Superintendent could have decided other than to accept.

As the temperature next to the steam-pipe must have been about 180 degrees, it seems to us unreasonable to throw mail-sacks against it, and yet demand that articles in the sacks injured by such treatment should be excluded. When absent-minded Isaac Newton found his fireplace so hot as to singe his clothing and chair, he ordered his servant to come and remove it; but his servant, when he came, said it was easier to wheel Sir Isaac a little further off. "Good!" said Mr. Newton. "I never thought of that." Perhaps Route Agent Cotterman had not thought of the foundation question in that light before.

LONG HIVES HORIZONTALLY, VS. TALL OR TWO-STORY HIVES.

In my Notes of Travel I omitted to mention friend Poppleton's apiary at Potsdam. He still uses what was called, years ago, the "Long Idea" hive. Of course, you can use whatever frame you choose; and where there are no upper stories at all, a frame a little narrower and a little deeper than the Langstroth may be advisable. Friend P., like some of the rest of us, is not very strong. He says that, for years, he has not been able to do heavy work of any kind, and it would be out of the question for him to think of lifting off an upper story; therefore he makes his hives as long as the needs of the colony demand it, and has the combs all side by side. In opening a hive, nothing is necessary but to remove a very light thin cover. As a proof that his plan is not a very bad one, he has succeeded in harvesting some of the largest crops of honey made in Florida or anywhere else, and I believe the work has almost all been done by himself and wife. Of course, they have to work pretty hard when a big honey-flow comes suddenly; but with the honey-flow come inspiration and energy; and, so far, with the inspiration and energy, strength has been vouchsafed, so that no honey has been wasted. May be you have seen bee-keepers before who were unable to do hard work; but when the honey came in at the rate of several barrels a day, some way they managed to get it out. Now, friend Poppleton has quite a few disciples scattered throughout Florida, and they are sufficiently successful to show that his plan is certainly not a very bad one. May it not be that such an arrangement succeeds better in the warm climate of Florida than it would away up north, where it is so much more important to economize the animal heat of the brood-nest?

A. I. R.

ROBBING SICK PEOPLE.

STATEMENT OF THE UNITED STATES CHEMIST
IN REGARD TO THE CLAIMS OF
ELECTROPOISE.

Notwithstanding the plain and clear *expose* that has been given for months past in these pages, there are quite a few who continue to insist that the Electropoise people, and others of the same stripe, have made a scientific discovery. They admit that physicians do not accept it, but give, as a reason, that they are jealous, because "it will spoil their business," etc. Now, I felt almost ashamed to refer any thing so ridiculously and plainly a sham to such an authority as the United States Chemist; but I finally decided to do so; but in order to have the matter perfectly fair and clear, I give you my letter to Prof. Wiley first:

Prof. H. W. Wiley.—Dear Sir:—We come to you this time with something that may not be altogether in your line; but even if this is true, you could do us and the people at large just now a great service by even a couple of lines with your signature attached. Very likely you are acquainted with the humbug mentioned and described in the little pamphlet inclosed. If you are not, please turn to page 5 and read the paragraph around which I have penciled a line. Now, if you can give us permission to say that you pronounce this neither sense nor science, it will be all we ask. Should you care to say more, however, it will be more acceptable to us than you can imagine.

The inclosed galley-proof of an article that appeared recently in our journal will give you some idea of the periodicals that have been helping in the *expose*.

Your in the cause of true science, and especially medical science, A. I. Root.
Medina, O., March 27.

The pamphlet mentioned above was, of course, the Electropoise company's circular.

Well, here is his answer in plain black and white:

U. S. DEPARTMENT OF AGRICULTURE,
DIVISION OF CHEMISTRY,
WASHINGTON, D. C.

Mr. A. I. Root, Medina, Ohio:

DEAR SIR—I was much interested in reading your letter of the 27th ultimo, and also in looking over the enclosures which you sent. You ask my opinion of the marked part of page 5 of the circular which you enclose. From a scientific point of view it is rank charlatanism. I should want to go no further than such a sentence to form an opinion of the merits of the invention. I do not think, however, that I could properly give an opinion on the invention itself, as I do not claim to be an expert on electrical matters. I fully agree with you, however, that it is a humbug, pure and simple.

I am, respectfully, H. W. WILEY,
April 1, 1895. Chemist.

You will see that I expressly asked his opinion in shape so that I might make it public. I hope the above may settle the matter in regard to the scientific part of their invention. In regard to the electrical part of the discovery, all electricians have pronounced it a fraud so far as that goes; and, in fact, the Electropoise people themselves now admit that it is *not* electricity, though they did not at first.

To meet the charge that I have not made an actual test myself, let me say that I have now in my possession one of these instruments; and, after testing it thoroughly, I can say conscientiously that it amounts to nothing more than would a brass button dropped into a bowl of water, a piece of wire being attached to the button, and the other end connected with the ankle of the patient. It is true, the metal case contains sulphur, carbon, etc.; but as the case is perfectly tight, and none of the water in the bowl touches the chemicals, the said chemicals have absolutely nothing to do with the instrument. There is nothing at all about

the arrangement to make it worthy of the name of apparatus; and if it does perform cures, it is, as I have said before, exactly in line with the idea that a horseshoe nailed over a door wards off disease.

Pardon me for saying once more that this revelation of fraud that has been practiced upon intelligent people forces us to the conclusion that Tammany Ring, of New York, was not the only place that needed ventilating and holding up to the public gaze. The saddest part of the whole matter is, that it is a great part of the religious papers of our land that need the *expose*. It pains one to the bottom of his heart to see the excuses the managers have made, for continuing to accept such an advertisement. When summed up it amounts to but little less than that there is "big money" in it, and that they *need* money, and *must* have it.

If there are among our readers those who would like to help in ferreting out and exposing this fraud, I would ask them to examine the advertising department of their family papers; and whenever any thing of this sort is found, write at once to the publisher, with a protest. Mail them this number of GLEANINGS, or clip out this article, and we will send you as many copies of GLEANINGS as you can use for the purpose. We will have some extra slips preserved containing this item. Any one can have as many of these slips as he can make use of. They will be a little handier to put in a letter instead of taking the trouble to mail the journal. A. I. Root.



What therefore God hath joined together, let not man put asunder.—MARK 10:9.

There was once a schoolboy whom we will call John; and there was also in the same neighborhood a schoolgirl whom we will call Mary. Mary was a professor of religion: John may have been, but I do not exactly remember now. At any rate, they were very good people, and, I believe, they stood well in the community round about them. By accident, perhaps it was, these two became somewhat intimate in their schooldays. John, however, decided, before the intimacy had gone so far as to attract attention, that she was not exactly the woman he would choose for a wife. This may not have been through any fault of the young lady, but simply because he judged their dispositions were not exactly congenial. Some time passed; and as he gave her no more attention than he did the other girls of the school, a third party—a young man whom we will call Henry—began to be somewhat intimate with Mary. Of course, this was nothing to John, until finally Henry made some disrespectful remarks about the young lady, in John's hearing. Perhaps Henry did it on purpose to see whether John still felt any particular interest in her. John, of course, felt pained. He studied the matter over, and decided that some one ought to tell Mary what Henry had been saying, for she would most assuredly cut his acquaintance if she knew it. For reasons that may be guessed, John thought he was hardly the one to give her a warning; but as things went on, and they seemed to be getting still more intimate, Henry at the same time continuing to show a low and depraved tendency, John finally decided it his duty as a friend to Mary to suggest to her she had better cut Henry's acquaintance. Mary,

of course, thanked him for his friendly interest, and gradually excused herself for having nothing more to do with Henry. So far all went well. But this incident seemed to have opened the way, as it were, for further acquaintance and friendship between John and Mary. His better judgment told him again he had better not go on; but as Mary evidently preferred he should, it was a rather hard matter for a boy yet in his teens to break away. My friend, have you not, at some time in your life, had more or less of a similar experience? Duty points the way, but inclination does not run exactly the same way duty points; and it is no easy thing, I tell you, to always follow duty instead of inclination, especially when an interesting young woman stands in one direction and duty in another. However, John finally declared in his own mind that things had gone far enough, and turned to his studies with an earnest and manly determination to follow duty, no matter what influences were brought to bear in any other direction.

By this time, however, both John and Mary were getting past boyhood and girlhood; and when he held aloof from her she remonstrated, and finally told him that, had it not been for his interference, she might have married Henry, and all would have been well; but now it was too late. If he did not want her himself when he cautioned her about being intimate with Henry, what *did* he want? I do not know for sure, but I suspect a woman's tears came in somewhere along here. Dear friends, it occurs to me just now that I am (perhaps unconsciously) reflecting a little severely on Mary. May be some of my fair readers will say, "That is just about the way it generally goes. The *man* is all right, and the woman is *entirely* to blame." You remember how Adam, away back in olden time, undertook to make out that he would not have got into any trouble if the woman—yes, the very woman whom God had given him—had not led the way. Well, I did not mean to blame poor Mary. Very likely she was more or less at fault; but the truth is, the story came to me from John's standpoint, and not from Mary's. I still think, however, that John *meant* to do right, for they were married soon after, and every thing should have been pleasant and lovely—yes, I am sure every thing *might* have been pleasant and lovely had *Christ Jesus* and not Satan been taken into that household. I feel sure that neither one of the two *meant* to take in Satan, and I know they will both claim that Satan was not *invited* by either one; but yet he got a foothold almost at the outset. My friends, I am a great believer in letting every young couple start out in married life by themselves—that is, if it can be so managed. For a time at least they do not need a third party to manage or suggest; and if there is ever a time in the life of any person when *Satan* is not needed, it is when man and wife first begin to *know* each other. "What therefore God hath joined together, let not man put asunder." I told you Mary was a professing Christian. I am afraid, however, her Christianity was not of a real practical kind. If I could talk with her about it she might insist that it was. I think John, at this stage, made no profession whatever. Very likely he was skeptical. Still, I believe he aimed to do right—at least, as nearly right as anybody is likely to do without Christ Jesus to guide and direct. You may guess, from what I have told you, that their start-out in life was not just the best kind of a start-out, and it was not long before little disagreements arose. John was cashier in a bank, earning a fair salary, and gave promise of being a good careful business man. He had saved a little money. Of course, his

wife knew just how much, and where it was. That is right. She *ought* to have known. Some of you may object to this, and there may be circumstances that would justify the husband in keeping his business from his wife; but as a rule they two should be *one*, in business and every thing else. But Mary had seen a piece of furniture that could be bought for just about the sum of money laid aside. John protested that it would be wisdom to keep a little laid up for a rainy day, or for sickness. She suggested he could earn more, and there was no peace in that little household of two until the piece of furniture was bought, to be put into a rented house. Even the coveted object, however, did not bring permanent peace, and dissension and discord soon began again to be the rule. The advent of a bright little boy did not seem to make much difference, or the difference did not last very long, and things passed on until there were two boys and a girl to be part and parcel of that home. John was getting farther and farther away from religious influence; and I am afraid the wife was only professor and *not* possessor.

Dear married friends, do you know what a terrible thing it is for discord to get possession of a household? I wonder if *you* have ever resolved, over and over again, that you would, on your part, stop. I wonder if you have felt sad to see this thing steadily gaining a hold, and growing, almost in *spite* of any thing you can do. I remember once, years ago, of visiting a home where Satan seemed to have become so thoroughly entrenched in his work that it was really fearful to contemplate. I changed the subject again and again; but every new topic seemed to raise the same trouble as the others. I remember I praised the meat that was served for our breakfast, and innocently asked what it cost in that region. Somebody said it was 14 cents. The mother replied that it was no such thing—they got the best kind of steak for 12. The man of the house retorted that he ought to know, for he bought it and *paid* for it. And so they went on until I was really afraid they might come to blows, notwithstanding my presence. Then I said somebody told me there were a good many rattlesnakes in that vicinity. But they disputed, and almost called each other names, because they did not agree any better about the "snakes."

My good friend, were you ever in a hurry in the morning, when breakfast happened to be late? Did you ever, almost before you thought, suggest that things were *always* late in your especial household? If the good wife had been trained to the business—but I sincerely hope she had not—she might retort that you *knew* you did not have to wait for your breakfast *once a month*. You see, husband and wife get so well acquainted with each other that it is their *privilege* to talk plain; and some people pride themselves on their habit of plain speaking. God forbid. You have no more business to give pain to your wife by your plain speaking than you have to wound or hurt the feelings of some good wife whose *guest* you are. By the way, shall I tell you that a great many of my sins come right along here with that restless and impatient disposition of mine? When business is pushing—and it is almost always pushing when I am around—I am up early in the morning; and if breakfast is delayed, it is the most natural thing in the world for me to become impatient, and to scold. We expect our men, as a rule, to get to their work at about 7 o'clock; and a great many times, if I am not on hand when they start out, something goes wrong. The team may go in the wrong direction, or the team and two or three

men may all be standing still and waiting for a tool if I am not on hand to find the tool or take a new one out of the store rather than waste more time than the old tool is worth. Well, if I should start everybody off at work *before* breakfast, Mrs. Root would be annoyed by having the breakfast late, and having her work thrown out of joint. Another thing, our morning prayers very often come right in when the men and team are waiting, or something else of a similar kind. The temptation is great to skip worship for just this time. Shall we skip it? God forbid. There may be important duties to be attended to; there may be others waiting; it may be a question of duties; but my verdict, after long years of experience, is that we had better delay almost any thing else, or, I might almost say, *every* thing else, rather than think of skipping the daily Bible-reading and prayers. A good friend of mine has said, "Stick to your family worship, and it will drive out all discord;" or, in other words, "if discord does not drive out family worship, then family worship will *surely* drive out discord." I *know* how distasteful it is to think of taking the Bible in hand just after you have been scolding or contradicting; but I have sometimes thought that we might consistently sum it up in the words of the old veteran commander Joshua, "Choose ye this day whom ye will serve." I do not know for sure that the husband is *always* the aggressor. I am afraid, however, he usually is. In a fit of impatience he makes a statement, and overstates it. When you are vexed, Satan always stands at your elbow, and urges you to put it *strong*. If you listen to him you will go so far that your wife takes it up and says, "Now, that is not true, and you *know* it is not." The latter, of course, is an additional sting to the lash; and Satan prompts you to reply, even though you *know* better when you say it, "It is true." By this time your faces are both flushed. Children are *very* apt learners in such matters, and the disease is *terribly* catching. It pains my heart as I go over it now; and yet I have, during my travels, heard almost or quite as bad as the above, even while I, a stranger, was present. Dear friends, do not be alarmed. It was not in a bee-keeper's home, and it was years ago. Perhaps I have taken an extreme case. I sincerely hope it is extreme. But now and then I get glimpses of the outcome of these things. It grows and grows; and the very best disposition in the world is hardly proof against it if one remains long where it is going on. Were I so disposed, and if Satan would lend his help—and, by the way, he is always exceedingly *ready* to help—I verily believe that I could, in process of time, make the sweetest-tempered man or *woman* in the world bitter and hard and ugly. I have been told sometimes that I have a *rare* talent for provoking people, when I feel that way. God helping me, I never mean to use that talent any more; and if I have such a talent, Christ Jesus has, I believe, given me another talent or gift. It certainly must have come from him, for it never belonged to A. I. Root himself—a talent for helping people to be gentle and kind—to turn away wrath with a soft answer. To turn the figure round, Christ helping me I have sometimes thought that, by taking plenty of time and great pains, and much prayer for help, I might succeed in taking one of the most bitter, hard, and ugly persons, and making him gentle and kind. It is hard work, though. A grown-up person who has fallen into a way of being hateful can be made to give it up and become sweet-tempered, only by a *tremendous* deal of hard work. It must be "line upon line, precept upon precept." It must be a continual rendering of *good* for *evil*, and replying to hard

and cutting speeches with soft and gentle answers right straight along for months, and perhaps *years*. The disagreeable person must be loved with no *common* love. That 13th chapter of I. Corinthians tells how it is done. You must suffer *long*, and be kind. You must not get provoked, no matter what happens. Neither must you even *think* evil—"beareth all things, believeth all things, endureth all things." This is the way the teacher must go to work to redeem the pupil. I know it can be done, for I have seen it done. A gentle, loving, pious wife or mother has again and again transformed a bad and wicked man, with Jesus' help. When I heard the story of John and Mary I felt to wondering how it would have turned out had Mary been *my* wife—I mean, suppose I should have been suddenly converted when well along in life, and suppose my wife was not converted, but remained just the same. The man is the stronger of the two; and if he succeeds when he takes the lead in educating his wife to discord, he can usually, by *taking the lead*, and asking for grace, lead her back to gentleness and grace and truth; and when it is done—when you have succeeded in winning your *wife*, oh what a *glorious* victory! If there is joy in heaven among the angels over a reclaimed *sinner*, what joy must there be over the mother of a home, who has been reclaimed and brought from darkness into light!

If you should be away from home, the invited guest of some well-bred people, you would never think or dream of grumbling—no, not even if the breakfast were so late as to cause you to *miss your train*. Now, if there is any one on earth who demands your most gentle bearing and your kindest courtesy, it is the wife whom God gave you. Some of you may suggest that God did not give her—that it came about something the way I have described in the story of John and Mary. But, my friend, you are wrong. "What therefore God hath joined together, let not man put asunder." If you are lawfully wedded man and wife, that is enough—the command of our text holds. If there are *children* in the home who belong to you two, then a *sacred seal* has been placed by *God himself* on the union that exists between you; and whether you, during the marriage ceremony, promised to honor and cherish this partner or not, all mankind and God himself expect you to do so.

I shall have something further to tell you in regard to John and Mary in our next, Providence permitting.

FINDING WATER WITH A SWITCH.

SEVERAL good friends have written me that this thing is true and honest, and that there really is a force in nature, heretofore unrecognized by science and scientific men; and several declare they can trace underground streams as you would trace a stream or brook on the surface. Now, this is going to make the test comparatively easy, if it is true: First, have a row of stakes set, outlining the course of the underground stream; then let the operator be blindfolded, and see if he will set some stakes along the same line. When you find a person who succeeds in doing this, then I am ready to pay him a visit, and perhaps take along some one from some of our experiment stations, so as to have the matter tested by a competent official.

A. I. R.



PINEAPPLE-GROWING, ETC.

Now, then, if you please, let us go back to pineapples. I think my last Notes of Travel were when I was stopping at Mr. Poppleton's. It costs from \$50 to \$75 an acre to clear up the land, and get it ready for pineapples. It is mostly done by hand, digging out the saw-palmetto roots and other trash. These saw-palmetto roots, however, are quite valuable. The State Chemist at Lake City told me that fresh roots, burned to ashes, show 42 per cent of potash—that is, 42 per cent of the *ashes* is potash. This is remarkable, when we consider that the best hard-wood ashes seldom contain more than 8 or 10 per cent, and often not half of that; and potash is in constant requisition in Florida in considerable quantities. After the land is all ready for the plants, it needs from \$25 to \$50 worth of fertilizers every year. The crop of pineapples, however, brings from \$100 to \$400.* The fertilizers used are cotton-seed meal principally; a good deal of sulphate of potash, some fish guano, and large quantities of fertilizers from the North, are used right along. Mapes', Bradley's, and Bowker's are all largely used. Pineapples are cultivated about once a month, with a scuffle-hoe. The work is all done by hand. Mr. Dyer, a neighbor of Mr. Poppleton's, had a few that withstood the December freeze, and we enjoyed beautiful fruit all the time we were in that neighborhood. There are, perhaps, a dozen different varieties of pineapples in cultivation. Some of the new varieties sell as high as 40 or 50 cents per plant. We rather thought the "sugarloaf" the most delicious. There is no seed to the pineapple—at least, I never heard of one.† New plantations are made from little plants, and the little plants are obtained in four different ways: First, the crown that comes out of the top of the pineapple; second, slips that grow around the bottom of the fruit; third, suckers; fourth, ratoon. The ratoon is a little plant that starts up out of ground somewhere near the mature plant.

In many places they protect from the frost and sun by means of strips of board. This

forms a sort of roof above the plants, just high enough so one can walk under it. It is supported by posts. The strips of board are three inches wide, and the space between the strips is three inches. The cost of covering a whole acre is about \$800. This protection keeps off any ordinary frost; but during the severe freezes of February, the protection did not seem to amount to very much, unless it was pretty well south. At Fort Myers, for instance, the plants seemed to be almost, if not quite, uninjured underneath the covering.

Friend Poppleton kindly took us in his sailboat, and we visited pineapple-growers and gardeners for quite a distance round. Florida is just commencing to do considerable in the way of irrigation. The nicest apparatus we found on the East Coast was at Dr. Howland's, who has a gas-engine, such as I have described, for pumping water. We found it down in the woods, at work all alone by itself, pumping the water out of a spring. The doctor was in his garden with his men, perhaps a quarter of a mile away, at work with his crops. He has iron pipes laid on top of the ground, 20 feet apart. At intervals of 20 feet along these pipes a $\frac{3}{4}$ -inch standard goes up perhaps four feet high, having a revolving sprinkler on top. This gives the effect of a gentle rain all over the ground where the pipes are laid. The capacity of the engine is hardly sufficient to pump water enough to sprinkle the whole acre at once. Perhaps a quarter of an acre is sprinkled at a time; but by running it about four hours, the ground seems to be sufficiently wetted. In Florida they are hindered a great deal by different kinds of insect-enemies; and certain kinds of garden vegetables, in some localities, can not be grown at all on account of these. Well, the doctor informed us that the sprinkler proved to be a perfect remedy for these pests. There are not many kinds of insects that can do much damage while it is raining; and with the light, sandy soil they have, there is not very much danger of injuring anything by too much wet; therefore the doctor had some of the most beautiful summer squashes, onions, beans, and almost every other vegetable, just smiling under the influence of water and sunshine all at the same time.

During our many pleasant boat-rides around the home of friend Poppleton, we met again and again the queer phenomenon of a tree having limbs at both ends. One set of limbs goes up into the air, and the other set goes down into the water. As a consequence, in the course of time one single tree may cover an acre or a whole island with its growth so dense that nothing larger than a cat or dog would be able to get through. This queer tree is called the red mangrove, or aerial plant. According to Webster it "spreads by emitting aerial roots, which fasten in the saline mire and eventually become new stems. The seeds also send down a strong root while yet attached to the parent plant. The fruit is sweet and eatable. The bark is astringent, and is used for tanning." It does not bear honey, or, at least, not enough to be of any actual use like its near relative the black mangrove. The seed is a queer-looking thing, about the size and shape of a cigar. When it drops off into the water, one end sinks and the other end floats on top. When it comes up near the shore, so the lower end touches the bottom, then roots put out, and the queer-shaped tree is the result. Whenever one sees these queer-looking trees skirting the edge of the shore or an island, he thinks of the banyan-tree that we used to look at in our geographies, away back in the old schoolhouse on the crossroads.

While visiting the pineapple groves we saw

* Like most other fruits and vegetables, there is a chance to do big things with pineapples under favorable circumstances and with the best of care and fertilizers. For instance, Mr. Poppleton sent six pineapples to Jacksonville, and they sold for \$1.25 each, and he actually received from the commission merchant \$1.00 apiece for them. I think they weighed 15 or 16 lbs. each. A pineapple has been produced in that neighborhood, having the enormous weight of *twenty-two* pounds. I mention this only to show the possibilities in that line.

† After the above was in type, friend Poppleton kindly sets me right, and gives us the following information:

Friend Root:—Pineapples do have seeds, either a mature or immature one in each eye. You may remember I told you that the apple had a small purple blossom at the point of each eye. I don't think any were quite far enough along when you were here to be in bloom; but you might have seen them later on when you were at Fort Myers. Mr. Johns told us the sheds we visited near here were so much of a protection that the February freeze did him no damage. Ordinary seasons we have ripe pineapples every month in the year. The main crop comes in June and July; but a plantation of, say, 10 acres would ship a few crates to market every month in the year, except, possibly, April and May, and would have enough more ripening along at all times to fully supply a family.

Potsdam, Fla., April 4.

O. O. POPPLETON.

a queer animal washed upon the shore, about the size of a cow, and with a head looking considerably like that of a cow. This is called the sea-cow, or "manatee." Friend P. tells me these are quite common in these waters, notwithstanding the fact that many of them have been exhibited in shows as being "the only living specimens," etc. These animals are 15 feet or more in length, and are found both in fresh and salt water.

About the 7th of February, we bade adieu to the kind friends at Mr. Poppleton's, and moved on further north to Gifford Station. Constance had got rather used up by mosquitoes at Lake Worth, and moving about so constantly every day, so she went back to Jacksonville for "repairs." Even if Gifford was in the wilderness, I found a very good road for my wheel, and in due time reached the Gifford mansion. This is only about a quarter of a mile from a town called Vero. But the conductor would not let me off at Vero, so I had a wheel ride as a consequence. As I came at a time when they were not expecting me, I found no one at home but a miss of ten years old. She and I soon became excellent friends. She told me how they managed the postoffice, and said she could do it all herself; and I was greatly surprised to hear her answer questions that I put to her in regard to general postoffice business. Her name is Ruby. She not only told me about the postoffice, but about the neighbors and other things. They are so far away from everybody that they have no schools for her to attend; and, in fact, there is not any little girl for a playmate within miles in any direction. The State of Florida, however, is not forgetful of her children. There is a provision by law, so that each pupil receives, if I am correct, \$10 for a term of 16 weeks. The county superintendent decides, at his examinations, whether the money has been well expended. Accordingly, I found my young friend Ruby remarkably bright and ready. I suppose one reason why we became fast friends in so short a time was that she rather hungered for companionship of any kind. If she could not have a little girl to talk to, a man 55 years old, like myself, would do a great deal better than nothing.

After a while I took my wheel and went out to meet her brother, who was at work with the horses and farming-tools, a couple of miles away. You see, friend Gifford has horses and wagons, etc., after all. And, by the way, he has some land around him that *warrants* having Northern tools. It is not all sand, let me tell you. After I found Charles (Ruby's brother), I went out to meet friend Gifford himself. His garden was of wonderful interest to me, especially the new, strange fruits. There were mangoes, guavas, mulberries, sugar-apples, tamarinds, sour-sops, cherries, grape-fruit, etc. The last-named tree was left with part of its crop hanging to its limbs for my special benefit. The tree was scarcely as high as my head, only three years old, and yet it had borne three bushels of fruit. One bushel remained on the tree, left for me. The grape-fruit grow so close as to touch each other, and I believe this has suggested the queer name—grape-fruit. When one is tired and thirsty during hot weather, it is wonderfully delicious.

When I arrived the mulberry-trees were bending with loads of berries almost big enough to begin to turn red. During the night, however, both berries and foliage were literally coated by the frost.

Friend Gifford is an enthusiast on mangoes. It is a tropical tree of most rapid growth, and the fruit is greatly sought for after one has learned to eat it. Friend G. is satisfied that it has wonderful curative properties, especially

where one is troubled with disordered stomach or bowels. Some people, who have not learned to eat it, say it tastes like cotton batting soaked in coal oil; but, notwithstanding this, others are so extremely fond of it that the fruit on a single tree at St. Lucie, one season, brought the sum of \$150; and Mrs. Prange (who is kindly taking down these notes for me) adds that the family found this one tree their main support. In fact, it is about all they have to get a living from. Now, when I was writing, a few months ago about supporting a family on a *quarter of an acre*, some of you were inclined to make fun of the idea; but here is a family depending upon a single fruit-tree, without saying anything about as much land as a quarter of an acre. When I expressed my incredulity in regard to this statement, friend G. said the man's name is Alec Bell, and that I could easily get the full facts if need be. He added, however, that one reason why they received so much money from the crop was that it seemed to be an extremely fine variety, and many sold for an extra price because the parties buying wanted the seeds to plant. Friend G. added further, that there were mango-trees standing in his garden that he would not have taken \$100 for, before the December freeze. I suggested that, for \$100, he could have covered the whole tree, trunk and branches, with a heap of dirt; and this, indeed, might have been done, or something like it, in many cases; but the first came "like a thief in the night," and nobody thought it was going to hold on so long without letting up.

Another of friend Gifford's hobbies is Japan persimmons. This is a new fruit that has not been very much grown in Florida; but fine specimens, I am told, have been sold for a nickel apiece. The fruit of a good variety is as large as a good-sized peach; in fact, they have been raised $4\frac{1}{2}$ inches in diameter. And this fruit is clean pulp clear through—there is not a stone or seed of any kind. The tree is a wonderful grower, like the mangrove, and I think it has not been very much harmed by the freeze.

Another of the Florida fruits is the Avocado pear; but almost everybody calls it the "alligator" pear, because it comes handier to say alligator than "Avocado;" and after you have it said, it is not a pear at all, even then; but it is a beautiful fruit. Did I tell you that Florida is the greatest place I ever saw in the world for fertilizers of every sort? Why, the outbuildings of even the humblest home to the biggest hotel are almost invariably provided with galvanized iron pails, or some equivalent (Terry's plan, you remember), to receive and preserve the night-soil. When anybody wants to plant a tree he digs quite a little cavity, pours in a pailful of this night-soil, mixes it with the sand until it is thoroughly incorporated, and not at all offensive, then plants the tree, and it has a good send-off. No matter what a man works at, he has some trees or fruits of some kind growing in his dooryard, and therefore he is interested in saving everything in the shape of fertilizer. Well, near friend Gifford's home there are great droves of wild cattle; and up near the river there is a clean spot of ground that, for some reason or other, is almost free from vegetation. Here the cows come to lie down nights. At intervals friend Gifford goes out with his wagon and scoop-shovels, and gathers up the "cow-chips" as they call them in Florida. His beautiful fruit-orchard is fertilized almost entirely by this manure.

On one of our visits we called on a Mr. Weis. This man, although he lives a sort of hermit life, all by himself, away out in the swampy woods, where not even a road of any kind runs anywhere near him—this poor lone bachelor friend has one of the prettiest gardens I ever

saw. We found bananas, date palms, potatoes, cabbage, string beans, and even some beautiful flowers, and nobody but himself to enjoy them. You might have known I would have made a protest against such a waste. Why, there are *thousands* of industrious, intelligent German women who would *delight* in finding such a home, and they would give this poor, lonely man a glimpse of happiness and companionship such as he has never *dreamed* of; and then there would probably be some reason, in course of time, for building a neat little *schoolhouse* away down in those Florida wilds.

Several times I wondered why it was that everybody in Florida was planting beans; and it was just one kind of bean, too—the Refugee, or Thousand-to-one. They say the golden wax beans do not do well in Florida; but they produce this one kind of string bean. I did not see any beans in Florida, however, with the rank, luxuriant growth we have here on our clay soil; but when I suggested as much to friend Gifford, he replied that they sometimes sold a single crop for \$400 per acre, even if they did not get such tremendous crops as we do. His daughter, Mrs. Sprange, here puts in, by way of parenthesis, that sometimes the crop brings nearer 4 cents per acre.

Ruby's mother died of consumption less than a year ago. They brought her to Florida when it was too late, although her life was prolonged several years, so the friends believed, in consequence of getting to Florida when she did. The cook of the family, while I was there, was a boy who had formerly served in that capacity on board of a steamboat. In consequence of dull times he was out of employment, and friend Gifford took him in, and I found him making himself exceedingly handy, indoors and out. In one of our trips through the woods, we came across a deserted plantation, where orange-trees were planted twenty years ago. Nobody has tried to do anything with it for years past, and the place has all grown up to forest; but the orange-trees, mostly the sour variety, grow right out in the woods, and bear considerable crops. I found some of them that had escaped the frosts, and I thought them quite delicious.

Almost all through Florida, bee-keepers complain of the depredations of bears. Once upon a time a bear visited an apiary where there were cases of sections all ready to come off. The bear took off the top of the hive, then took two cases of sections, one under each "arm," and started off for the forest. I presume he was a little bashful about sitting down and eating his honey there so near the bee-keeper's home. The owner of the hives, however, heard the racket, and put out after him. The consequence was, Bruin dropped his cases of honey in the bushes, and put off without them. I asked the owner if he actually *saw* the bear going off with a case of sections under each arm. He admitted that he did not see the operation, but replied, "But, Mr. Root, how else *could* he have carried them? Please tell, will you? I chased the bear away, picked up my two cases of sections which he dropped on top of the bushes, so as not to break or injure them; and, in fact, they were in such good order that I shipped them both to New York, and sold them with the rest. Now, how did the bear carry those two cases out into the woods unless he had one under each arm and walked on his hind feet? Please tell."

Now, friends, I am sorry to say that I can not at this very minute tell who told me this bear-story. It sounds very much as if it were A. F. Brown; but if he absolutely declares that he did not tell it, then it must have been somebody else.

I suggested to friend Gifford that he should

keep store in connection with his postoffice, and that Ruby would make a tip-top clerk. But he said he had had "store" enough in the North—that he does not want to be bothered any more. There is not a store or grocery of any sort within six miles of him. I happen to know, however, that he does quite a retail business as it is, for Ruby says they sell oranges for a cent apiece, and honey for 5 cts. a pound, at retail.

You remember what I said about the Weather Bureau and the oranges? Well, during the freeze of Feb. 7 I had an opportunity of seeing something of the difficulty of transmitting cold-wave messages in the interior of Florida. On the 6th of February, about 10 o'clock in the morning, Jacksonville was notified that a cold wave would reach there during the night. This message was promptly telegraphed to Titusville, where they ran up the cold-wave flag. The displayman also mailed cards of warning to all the postoffices in the county. One of these cold-wave cards passed Vero postoffice on the train at 7 o'clock in the evening. There is so little mail in the evening, however, that they have decided to let it all go down to West Palm Beach, and come up the following morning at 10 o'clock; and, accordingly, at that time next day, we were notified of a cold wave coming. We got the notice several hours after the mischief was done. Now, this happened right on one of the main lines of railway too; how would it be several miles away from either railway or telegraph lines?



THE NEW CATALOGS.

Look out for the catalog that praises *every* thing unstintedly, and especially where the good qualities are mentioned of every fruit and vegetable, and none of the objectionable qualities. We have catalog men now who report almost as faithfully and disinterestedly as do our experiment stations, and these men should be encouraged and patronized. Take the Timbrell strawberry for an illustration. How many of the catalogs tell you that, while it is one of the grandest new berries, it has one very objectionable feature—a mottled white tip, even when the berries are perfectly ripe?

VARIATION IN PRICES OF POTATOES, ONION-SEEDS, ETC.

If you will look over the seed-catalogs you will see what a wide margin of prices is given on the same article. For instance, one seed-catalog will put seed-potatoes at \$2.25 per bushel, while another one quotes the same variety at \$2.25 a barrel. Again, some of our leading seedsmen in the great cities are still asking \$2.50 a peck for onion-seeds, potato onions, multipliers, etc., while other friends who live out in the country are offering the same thing, and would be glad to get \$2.50 for a whole bushel. Perhaps it is no particular business of ours; but I would advise that, before you send off your hard earnings, you look over the agricultural papers and see the bargains offered in their advertising columns, and also look carefully over the catalogs sent out by practical farmers.

WHITE VICTORIA ONIONS.

I believe we were among the first to introduce and recommend these beautiful fine large onions; but of late there has been more or less

complaint that the seed produced onions of different kinds, not true, etc. In Burpee's 1895 catalog we find the following by way of explanation:

Since first introducing these onions, we have each year heretofore imported seed direct from the original growers in Southern Italy (whose gardens we have several times visited); but we regret to announce that the seed sent in the autumn of 1893 (for sale last year) *was not true to name*. Therefore we have been forced to discontinue the sale of imported seed, and now offer *exclusively AMERICAN-GROWN SEED*. Unfortunately, the Italians do not seem to realize the importance of *purity in seeds*, but we did think that we could rely upon the original growers maintaining, by careful selection, the true type of these Victoria onions. Fortunately, however, much of the seed sold last year had been grown for us at home, so that all our customers who ordered Victoria onions did not receive the inferior Italian-grown seed; but those who did, if they will kindly notify us, are now entitled to select fresh American-grown seed, to the same value, without cost.

W. ATLEE BURPEE & CO.

We are glad to see the above from friend Burpee. It has the right ring; and we make the same offer to all who bought seed of us of the White Victoria. If it did not prove to be what it ought to be, tell us how much seed you had and when you got it, and we will send you good seed, or, at least, seed bought directly of Burpee, in place of it.

PARIS GREEN TREATMENT FOR CODLING MOTH.

The United States Department of Agriculture sends out the following:

Secretary Morton, in an interview to-day, said:

"The apple-trade of the United States with foreign countries has always been profitable. The demand for apples grown in the United States has always been in excess of the supply. The United Kingdom of Great Britain alone, during the nine months ending September, 1894, paid the orchards of the United States \$2,500,000. The greatest enemy to our export apple is the 'codling moth.' But the entire crop can be made wormless if the orchards of the United States will use the following recipe:

"Use Paris green at the rate of 1 pound to 150 gallons of water. Weigh out sufficient poison for the capacity of the tank used, and make it into a thin paint with a small quantity of water, and add powdered or quicklime equal to the weight of poison used, mixing thoroughly. The lime takes up the free arsenic, and removes the danger of scalding. Strain the mixture into the spray-tank, taking care to pulverize and wash all the poison through the strainer. During the operation of spraying, see that the liquid is agitated with sufficient frequency to prevent the settling of the poison.

"The prime essential in spraying is to break up the liquid into a fine mist, so as to coat every leaf and part of the plant as lightly as is consistent with thoroughness. This should not require more than from 3 to 7 gallons for a comparatively large fruit-tree.

"Let the first spraying follow within a week after the falling of the blossoms of either apple or pear, and follow this with a second treatment just before the fruit turns down on the stem, or when it is from $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter. The first spraying reaches the eggs laid by the moth in the flower end of the fruit, shortly after the falling of the blossoms; and the second, the later eggs laid by belated moths. Do not spray trees when in bloom; and if a washing rain immediately follows treatment, repeat the application.

"Knapsack sprayers suitable for applying the insecticide can be obtained at reasonable prices at all agricultural-implement stores."

Washington, D. C., March 23.

THE ONION-MIDGE.

This insect is so small that it can hardly be seen by the naked eye. I had just as thrifty onions last year as anybody could wish to see; then all at once they commenced to die from the top down, before they had begun to bottom. I went to work and sprayed them with Paris green, but that did no good; then I spray-

ed with London purple, and that did no good. Next I took slacked lime and put it into a coarse sack and dusted the onions in the morning when the dew was on. I made them clear white, but that did no good. Then I got some soot from the chimney and dusted them early in the morning, and made them clear black; but they worked right on, and killed all my sets and the big onions too. Are there any of the GLEANINGS readers who know any thing about the insects? I should be glad to find out what to do to get rid of that onion-destroyer.

HENRY PAULUS.

New Philadelphia, O., Feb. 12.

I myself have been considerably troubled for fear the onion-midge might commence again in our locality as it did last season. Some of the onion-growers think, however, it was mainly caused by the drouth—that plenty of rain would have drowned them out, or at least hindered their enormous propagation. I am glad you have tried all the things you have mentioned, and reported to us, for it will save others from going through the same experiments. On page 596 of this journal for July 15, 1894, I described the onion-midge, and said that our experiment-station folks visited the large onion-fields, and made some experiments; and they decided, I believe, that the only feasible remedies were tobacco tea or dilute carbolic acid. The latter will be the cheaper—one part of carbolic acid to 100 parts of water put on the onion-tops with a spray-pump. If our Ohio Experiment Station, or, in fact, any other, have any thing better to offer than the above, we shall be very glad indeed to hear from them. Our American Pearl onion is so early that it has so far matured a crop before the midge really got to work.

WATER CRESS—A CAUTION.

This variety is what the English and German people are so fond of. I have a large spring in which, a few years ago, some roots were set. They increased very fast from seed floating down stream, and soon filled the open ditch, and choked the side drains, and caused the sediment and mud to fill the ditch for a mile in length. This had to be cleaned out at great expense to avoid flooding the ground. A word of caution here may save you a world of trouble. It sells readily, tied in bunches about what your hand will reach around. I get 2½ cts. a bunch wholesale, and 5 cts. retail. Where it is kept at stores it is set in pans with an inch of water or more, where it will keep without wilting, for some time. It is used in hotels to garnish dishes, and is eaten similarly to celery, by dipping in salt. Some use vinegar, the same as in eating lettuce.

CHAS. MILLS.

Fairmount, N. Y., Mar. 24.

FIVE SASHES.

Several years ago I got five sashes. April first I helped prepare a bed, and had a kind hand make a frame to put over it. The sashes cost me \$6.50, the lumber \$1.00. I placed the thermometer inside on a nail, and brought out my seed-basket. I put in a row of celery four inches from the front of the frame, always in the coolest shaded place; then crosswise, several rows of tomatoes; then one and a half sashes were sowed to Grand Rapids lettuce; then cabbage, sage, and cauliflower. We had lettuce for general family use in three weeks, and used daily till garden lettuce was ready. We sold \$4.40 of cabbage and tomato plants, besides setting a large garden at home. The tomatoes were dropped seed by seed about an inch apart, of Dwarf Champion sort, and made the

finest plants I had ever grown. For earliness, robust growth, satisfactory fruit, and freedom from disease, I grow the Champion. My five sashes have since been my delight, and twice paid for themselves, besides the home pleasure and benefit.

MRS. L. J. PAGE.

Faribault, Minn.

FLORIDA UP TO DATE, ETC.

The Alec Bell mango-tree story is rather large, but you haven't told it all, even yet. It was *three* years instead of *one* that the fruit sold for \$150. I have the finest beans I ever saw; shall commence shipping this week. Potatoes, cabbage, and watermelons are looking well. Japan persimmons are loading with fruit. If half hold on, the trees will have to be supported.

Bees are doing well. I am painting all of the hives over new, and shifting all the bees into newly painted hives, taking pains to cut out all burr-combs, and to put all drone-combs in upper stories.

H. T. GIFFORD.

Vero, Fla., Apr. 8.

SWEET CORN.

We have found an excellent demand for our crop of fresh sweet corn in neighboring city markets. City people seem to find it quite difficult to get their corn fresh. After it has lain in the stores a day or more it rapidly becomes tough and stale, and its quality rapidly depreciates, until soon it is hardly good for any thing. Consequently, corn freshly gathered, brought in directly from the farm, is a welcome article. To make a good succession through the season, sow Cory first, then Minnesota, and last, Stowell's Evergreen. The last should be sown several times at intervals of ten days, to have plenty of corn until frost comes. The early corn will probably bring at retail 20 to 25 cts. per dozen. Soon it will fall to about one cent an ear; but even at this last price there is a fair margin of profit, especially when the stalks are prized as horse or cattle food, as they justly should be. The feeding value of the stalks materially reduces, even if it does not quite offset, the cost of cultivating the entire crop. A fair estimate of the proceeds from an acre of sweet corn would be from \$75 to \$100; and, considering the labor expended, the sweet-corn crop averages about as well as the majority of farm and garden crops. One good thing is, that corn is not over-particular as to soil. A tough sod, turned over in May and enriched with fine barnyard manure, answers well for this crop. Or we may use nitrate of soda, superphosphate, and wood ashes, if we have not the manure to spare.

STRAWBERRIES.

The strawberry is the most luscious of small fruits, and the spring is by all odds the best time to set out plants. At the outset, take some care to secure vigorous young plants for setting. The common opinion seems to be, that any young plants that will grow answer well enough—a great mistake. We want young plants from large vigorous older plants, that have never been allowed to produce a berry. Fruiting-beds, and beds for propagating-purposes, should be regarded as distinct affairs. It is desirable to have the plants we are to set out come from the strongest parent stock possible. Next after getting the proper plants comes the planting. To secure the largest possible specimens of berries, confine the plants to hills 18 inches apart in each direction, only one plant in a hill; but to secure the largest crops of large berries, grow strawberries in *their* beds. A closely matted strawberry-bed means small, soft, poorly flavored berries.

Plants of almost any vigorous-growing variety, if set in early spring in rows four feet apart, the plants two feet distant in the rows, will cover the ground as closely as is desirable during the season. To cause the runners to cover all spaces uniformly, it is well to arrange them by hand in any cases where they do not properly separate naturally. By placing a little fine dirt just above the roots of the runner it will be held in place, and the process of rooting facilitated. Apply wood ashes for fertilizer, and cultivate often till the vines obstruct the work.

M. SUMNER PERKINS.

Danvers, Mass., Feb. 8.

MICHEL'S EARLY STRAWBERRY.

I am sorry to see Michel's Early in the list of "poor" ones at your agricultural station. I am growing Bederwood, Bubach No. 5, Crescent, Jessie, Michel's Early, and Warfield; and Michel's Early made the best stand of plants and gave the most berries (nice perfect ones too) of any of them. For one I shall not give up the Michel's Early yet.

Eldora, Ia., Jan. 19.

J. W. BUCHANAN.

WHAT SHALL WE DO?

WE can not take very much space in such a journal as this to discuss the financial and social matters that seem to be filling our newspapers at the present time; but I hope I may be pardoned for this suggestion: A great many people seem to claim that the world owes them a living and does not pay it. I fear this is bad philosophy. The world owes no man anything until he has earned it. When he has earned it, the world *generally* pays it. If manufacturers, bankers, etc., are so greedy and dishonest, do not have any thing to do with them. My father went into the woods, and chopped logs enough to build a house, brought up a family of seven children, without any help from manufacturers or millionaires, and it seems to me that is just what our people ought to do now. God surely helps those who help themselves.

A. I. R.

DAYLIGHT AHEAD.

YOU may remember that, when Dr. Wilford Hall got to doing an immense business in selling his internal water cure at \$4.00 for each secret, there began to be imitations. Somebody offered the same thing for \$2.00, and then somebody else came down to \$1.00, and so on to 50 cts., and lastly to 25 cts. At the latter figure there was not enough money in it to cause a great scramble any longer, and so the whole thing went down, and the secret was published in the papers. It is now getting to be just so with Electropoise, and a \$5.00 machine is already advertised. Very soon they will be down to \$1.00, and perhaps 50 cts. The question is, will the 50-cent one cure diseases just as well as the \$25.00 one? I am afraid it will not—not even if they should sell the very same thing that is now selling for \$25.00, for 25 cts. There is a tremendous lesson to be learned right along here; but will the people learn it? Will those who have been paying out so much money for medicines and expensive apparatus have grace to admit they made such a blunder in thinking the thing really did possess virtue?

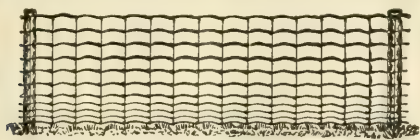
A. I. R.

BEE SUPPLIES.

I will give 10 per cent off for cash orders of \$5.00 and over up to May 1, '95. Send for free catalog to manufacturer.

J. J. BRADNER, MARION, IND.

In responding to this advertisement mention GLEANINGS.



FARMERS SHOULD EXPERIMENT

and not always take the word of interested parties. Very few of them have any idea how much the common soft wire will stretch. They may have been lead to believe it a mere trifle. It is an easy matter to prove that a No. 9 wire, under a strain of about 1000 lbs. will stretch from 1 to 1½ in. per foot and it never takes up its own slack. That accounts for those little end ratchets filling up so quickly. Our local agent will furnish a powerful stretcher for this experiment.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

Please mention this paper.

420 Lbs. Average

Is what my bees gave that I moved to the man-grove; those at home, 300 lbs. each; 5-banded bees, too. Queens, bred for business from this stock, will be sent in 1895 for \$1.00 each until May; per doz., \$8.00. Circular free.

J. B. CASE, Port Orange, Fla.

Please mention this paper.

John F. Nice still has for Sale

25 colonies of nice Italian bees in Simp. hive for \$4.00, in chaff hive for \$5.00.

329 Maynard St., Williamsport, Pa.

Full stocks of pure Italians on 7 L. frames in portico L. hives for \$5.00. C. G. FENN, Washington, Ct.

3=Banded TESTED ITALIAN Queens,

from my own imported queens, \$1.00 each.

Max Brauer, Beeville. Bee Co., Tex.

WHY NOT

Send your orders to W. H. Laws for Italian Queens?

THE BEST IS THE CHEAPEST.

For beauty and business you can't beat them. The leading bee-keepers of the U. S. are my customers, and all praise them. I breed either the Golden or Leather colored strains.

PRICES REDUCED

To suit the times. Fine breeders always on hand, \$2 to \$3. Untested, 75c; 3 for \$2. Tested, \$1; 6 for \$5. Address

W. H. LAWS, LAVACA, ARK.

Please mention GLEANINGS.

«MONEY-MAKERS»

Are a strain of business Italians that winter in the cold North, and are ready for business, with a bushel of bees, when the flowers bloom. They are gentle and industrious. Queens warranted purely in June. Each, \$1.00; six, \$5.00; doz., \$9.00. Safe arrival and satisfaction guaranteed. Never had any disease.

Address E. F. QUIGLEY, UNIONVILLE, Mo.

Please mention this paper.

Apiary for Sale.

\$800.00.

Eight hundred dollars in cash will purchase one of the best appointed apiaries in Canada. One hundred colonies; good location. Every thing first-class. The best of reasons for selling. If you mean business write me for particulars, or come and see for yourself.

F. A. CEMMELL,

Assistant Foul-Brood Inspector,

Stratford, Ont.

Mention this paper.

Queens by Return Mail.

Choice tested Italians, \$1 each. Untested, 75c each, \$8 per doz. These queens are from fine stock, vigorous and prolific, and are guaranteed to be No. 1 honey-gatherers. Send for price list.

J. W. K. SHAW & CO.,

Loreauville, Iberia Par., La.

In responding to this advertisement mention GLEANINGS.

Given Foundation

Ready for Delivery.

We are now making, as previously announced, Given foundation on rolls. We can supply the product at the same price as the regular wax. Customers who desire a small quantity to experiment with can have a little added to the regular foundation if they will so specify in their orders. We neither indorse nor condemn it, but hope it will be tried sufficiently to test its merits. The surplus Given has extra thin bases. The A. I. Root Co., Medina, O.

Queens, Either 3 or 5 Banded.

After May 1st, 75c; 6 for \$4.25. Nuclei cheap. Also poultry eggs for hatching, 50c up. Send for catalogue. Send your orders now. Can please you.

CHAS. H. THIES, Steeleville, Ill.

FOR SALE.—Buzz-saw table, with Root mandrel, \$14; 12-in. rip and cross-cut saws and 8-in. ditto, \$5.00; former-table and 3 cutters, \$10; scroll-saw table and saws, \$8.00. These are all separate machines, and all have iron frames and wood tops.

M. S. JACKSON, 63 Sixth Ave., Pittsburg, Pa.

Eggs for Hatching From Prize - Winning Fowls.

50c and \$1.00 per 15.

Send for circular.

AUGUST GOETZE & SON,

3822 Wood St., Wheeling, W. Va.

Please mention this paper

KIND WORDS FROM OUR CUSTOMERS.

I believe the Porter bee-escape to be one of the grandest things in the way of labor-saving inventions about the apiary.

San Mateo, Fla., March 28.

A. F. BROWN.

Do not stop GLEANINGS until I order it stopped. At the present time I could not keep bees without it and the A. B. J., and I want the A B C as soon as you have the new edition ready.

Parrett, Minn., Jan. 29.

SCOTT LAMONT.

Your Home talks and wheel-rides interest me greatly. Your Notes of Travel, and the description of places you have visited, are a never-ending source of delight to one of my daughters. I am a great lover of a good garden, and spend many an hour among my flowers and vegetables. Your talks on gardening are a great help. I have 12 colonies of bees, so you see I am not a bee-keeper on a large scale.

MRS. ALEX. PATTERSON.

Lucknow, Ont., March 22.

Still in the Lead!

Hilton's
Chaff
Hives,

White
Polished
Sections,

T Supers,
Foundation,
Smokers,

and every thing needed in the apiary.

Send for 1895 catalog.

GEO. E. HILTON, = = Fremont, Mich.
Please mention this paper.

Best on Earth.



Bingham's five sizes of bee-smokers range in price from 50c to \$1.75 per mail, and are the lowest-priced of any in the market, according to size. Bingham Smokers and Knives are made only by the inventor, and can be depended on every time, as they have been for 16 years as the best that could be made or used.



Mention GLEANINGS, and send for circular of prices.

T. F. BINGHAM, Abronja, Mich.

Please mention this paper

DON'T MONKEY NOW.

Send for our 36-page catalog free.

Root Co.'s Supplies kept in stock.

We can save you freight. Let us know what you need for the apiary. Get our prices.

JNO. NEBEL & SON, High Hill, Mo.
Please mention this paper.



Control Your Swarms, Requeen, Etc.



Send 25c for samples of West's Patent Spiral wire Queen-Cell Protectors, and Pat. Spiral Queen Hatching and Introducing Cage, also best Bee-Escape, with circular explaining. Twelve Cell-protectors, 60c; 100, \$3. 12 cages, \$1; 100, \$5, by mail. Circular free. Address N. D. WEST, Middleburgh, Scho. Co., N. Y.

Sold also by all the leading supply-dealers.

In responding to this advertisement mention GLEANINGS.

STAHL'S EXCELSIOR

Spraying Outfits kill insects, prevent leaf blight and wormy fruit. Insure a heavy yield of all fruit and vegetable crops. Thousands in use. Send 6 cts. for catalog and full treatise on spraying. Circulars free. Address

WILLIAM STAHL, QUINCY, ILL.

In responding to this advertisement mention GLEANINGS

STRAWBERRY AND RASPBERRY PLANTS. Best New and Old varieties. Best grown plants. Catalog Free. With instructions for their culture. Send for it now. Mention this paper. Address

P. O. Box 213. E. J. SCOFIELD, Hanover, Wis.

In responding to this advertisement mention GLEANINGS.

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,

12tfdb Sole Manufacturers,
Sprout Brook, Montgomery Co., N. Y.

In responding to this advertisement mention GLEANINGS.

Sweetheart.

A Regular Sugar Lump.

LEADS Early, Large, Handsome, Good Ship-ALL per, Best Quality. Send for circular WATER- giving important facts to growers and MELONS shippers, with comparative sales and ON opinionous of many commission men in THE leading northern markets.

MARKET. Seed, Packet, 10 cts.; lb., \$1.50.

ALBERT WITTENMYER,

Originator, Grower, and Shipper,

Emison, Knox Co., Ind.

In responding to this advertisement mention GLEANINGS.

CHOICE

SWEET-POTATO SEED

Yellow Jersey (the best), Red Bermuda, and Yellow Nansemond, at \$2.50 for 11-peck barrels, till sold out. 4-8

L. H. REDD, De Soto, Illinois.

In responding to this advertisement mention GLEANINGS.

The New Craig Seedling Potato.

For full description of this Potato, see page 950 of this journal for Dec. 15, 1894. Prices: 1 lb. by mail, postpaid, 25 cts.; ½ peck, by freight or express, \$1.00; peck, \$1.75; ¼ bushel, \$3.00; bushel, \$5.00; barrel of 11 pecks, \$12.50. The above prices will hold good as long as our stock lasts. All orders by mail will be filled as soon as received. Orders by express will be shipped at once unless ordered otherwise. All orders for potatoes by freight will be filled April 1, or soon after that time, unless directions are given to ship at an earlier date. In this latter case I do not assume responsibility for loss in freezing; but where it is desirable to ship earlier, and customers have bad luck, I expect to help them out so far as I can consistently. In regard to my responsibility I would refer you to A. I. Root. In fact, where it is more convenient you can order potatoes of the A. I. Root Co., instead of sending your orders to me.

GEO. E. CRAIG, Zimmer, Franklin Co., O.

In responding to this advertisement mention GLEANINGS.

World's Fair Medal

Awarded my *Foundation*. Send for *free samples*. Dealers, write for wholesale prices. Root's new *Polished Sections* and other goods at his prices. *Free Illustrated Price List* of every thing needed in the apiary. **M. H. Hunt,**
Bell Branch, Mich.

Please mention this paper.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc.

PAGE & LYON MFG. CO.,

New London, Wis.

8tfdb

Please mention GLEANINGS.

21-8db

THE SOUTHERN Home of the Honey-Bee

Is ready for your orders for 3 or 5 banded queens, as good as the best, guaranteed free from paralysis. Warranted queens, 75c each; tested, \$1.00. After June 1, warranted, 50c each; tested, 75c each. Good breeders, \$2.00. Straight 5-banded, or "faultless," queens, \$2.50 each. Special prices on lots, also to the queen-dealer. Safe delivery and satisfaction guaranteed. Circular free. Address

HUFSTEDLER BROS., Clarksville, Tex.

☞ In responding to this advertisement mention GLEANINGS.

MUTH'S HONEY-EXTRACTOR, SQUARE GLASS HONEY-JARS.

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "Practical Hints" will be mailed for 10c in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.

Hives, Sections, Foundation, Bees, Queens,

Or any thing a Bee-keeper Needs.

In April and May I shall receive from the South (via steamer) cases of 8 frames of capped brood, well covered with bees. These are just right to build up colonies with.

Single frame, 90c; 4 frames, \$3.25; 8 frames, \$3.25; 8 frames, \$6.00; 16 frames, \$11.00.

Untested queens included for 90 cents.

Everything sent from this city. Let me know your wants. Catalog free.

I. J. Stringham, 105 Park Place, N. Y. City.

☞ In responding to this advertisement mention GLEANINGS.

Golden Queens From Texas.



"My queens are bred for business, as well as for beauty and gentleness. Safe arrival and reasonable satisfaction guaranteed. Untested, \$1.00; tested, \$1.50. Write for price list.

5-16ei

J. D. GIVENS, Lisbon, Texas. Box 3.

☞ In responding to this advertisement mention GLEANINGS.

Dovetailed Hives.

Sections, Extractors, Smokers, and every thing a Bee-keeper wants. **Honest Goods at Close Honest Prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

SEELEY'S GOLDEN ITALIAN QUEENS

are large, beautiful, bred for business, equal to all, and superior to many. Untested, April, 80 cts. each; ½ doz., \$4.50; May, 70 cts. each; ½ doz., \$4.00. Tested, \$1.00 each; fine breeders, \$2.00 each extra. Fine straight 5-banded breeding-queens, \$4.00 each. Satisfaction and safe arrival guaranteed.

E. A. SEELEY, Bloomer, Ark.

P. O. Money Order office, Lavaca, Ark. 7-20

☞ In responding to this advertisement mention GLEANINGS.

300 Colonies Of A No. 1 Italian bees in 8-frame Dov. hives cheap.

Queens, bees by the pound, and a full line of new first-class apiarian supplies. Send for catalog to Box 783, Belleville, Ill.

E. T. FLANAGAN.

Best ~ Goods

At lowest prices are what we are all after. The *quality* of Cary's goods has never been questioned. His X X white thin foundation and polished one-piece sections are the finest on the market. His bees and queens are from the best strains, and reared and shipped in the way that long years of experience have shown to be the best.

He has the largest stock of **BEE-KEEPERS' SUPPLIES** in New England; and as to prices you have only to send for a catalog and compare them with those of other dealers.

To those living in the East, there is the still further consideration of low freight rates. Address

W. W. CARY,

COLRAIN,

MASS.

☞ In responding to this advertisement mention GLEANINGS.

WINTER now is over!

And if you contemplate buying Bees and Queens

You will do well to write

For prices to

LEININGER BROS., FT. JENNINGS, O.

W. O. Victor, of Wharton, Tex., took

45,000 Lbs. of Honey in 1894.

He offers Italian Queens—good, old-style honey-queens—untested, first order, to any address, at 50c each. Also bees in any quantity; 450 colonies to draw from. **Root's goods constantly in stock.** Prices to suit the times. Buy near home, and save freight.

☞ In responding to this advertisement mention GLEANINGS.

25 Imported Carniolans

Ready for immediate delivery at \$5 each. Bred in 1894 at the most elevated point among the Carnic Alps where bees are kept. Daughters of these queens ready in April, \$1 ea; h; \$10 per doz. Address

The Carniolan Apiaries, Charlton Heights, Md.

☞ In responding to this advertisement mention GLEANINGS.

Rose Comb White and Brown Leghorns, And Silver-Laced Wyandottes.

15 eggs, \$1.00; 39 eggs, \$2.00.

J. W. COOK, Poneto, Ind.

BEGINNERS.

Beginners should have a copy of the Amateur Bee-keeper, a 70-page book by Prof. J. W. Rouse. Price 25 cents; if sent by mail, 28c. The little book and the Progressive Bee-keeper (a live progressive 28-page monthly journal) one year, 65c. Address any first-class dealer, or

LEAHY MFG. CO., HIGGINSVILLE, Mo.

☞ In responding to this advertisement mention GLEANINGS.



ODD-LOT SECTIONS.

Of the list of sections offered in last issue at special prices, we have sold the 1½ open top and bottom, but still have the other sizes listed.

BUSINESS CROWDING.

We are having all we can manage to keep our orders filled with reasonable promptness. Some orders for odd goods which have to be made are delayed longer than we like to have them; but we hope, by putting in extra time, to keep pace with the orders, and get goods out promptly.

There will be a good demand this spring for bees by the pound, nucleus, and colony, owing to the heavy losses in some quarters. We do not now sell bees ourselves, and there are only one or two who advertise nuclei in our columns. If you have bees to sell, advertise; but get your announcements in quick if you desire to catch the orders.

ONE PIECE SECTIONS.

As a sample of the way our one-piece sections go together without waste from breaking, we mention the fact that, during the past week, one of the girls in our employ folded on a Hubbard section-press, in less than half an hour, 500 sections taken from stock, only two of which were broken in folding. These sections, when folded, are much more rigid than any four-piece section can be unless glued. Think of the time saved in putting together, as well as the saving in first cost.

HONEY MARKET.

Our last call for extracted honey has brought us a number of favorable offers, some of which we have accepted. We are again able to supply choice extracted honey in 60-lb. cans, 2 in a case, at 8½¢; two-case lots or more, at 8¢; in 115-lb. kegs at 8¢, or direct from Wisconsin at 7¢. Barrels of 550 lbs., direct from Indiana, at 7¢. Special prices on large lots. These offers are subject to previous sale. We have calls for choice white comb honey. If any of our readers still have some unsold we should be pleased to hear from them, stating quantity, price and how put up.

WIRE FENCING AND NETTING.

The attention of those interested in fencing is directed to our advt on another page, offering special bargains in remnant rolls. This has not appeared since last June; and by comparing prices now and then you will find a marked reduction clear through the whole list. You will find at present prices some decided bargains in the list. We have in stock here 6 rolls of 3-in. mesh, No. 17 wire, 48 inches wide, which we offer at \$3.60 per roll, or the 6 rolls for \$20.00. This is a size not regularly kept in stock, and it will make a very desirable yard fence.

SECOND-HAND FOUNDATION-MILLS.

Two or three weeks ago we were sold out of second-hand mills, all but one six-inch. More have come in since, so that we now have the following list to offer:

Six-inch, No. 1467, hex., thin-surplus mill. Price \$12.00. This is the mill exhibited at the World's Fair, and was for a time used in our wax-room. It is good value for the price.

Six-inch, No. 1631, hex., thin-surplus mill. Price \$10.00; good value at the price.

Ten-inch, No. 1723, hex. Price \$12.00. This will make foundation 6 or 7 feet to the pound; was used in our wax-room, and is still an excellent mill, except for a blemish in the rolls, caused by a small hard substance passing through in the wax.

Ten-inch round, No. L L. Price \$14.00. This is a late-pattern mill, and in excellent condition; suitable for medium foundation; practically as good as new.

Ten-inch round cell, old style, No. M M. Price \$10.00. This mill has the old-style frame; was made a number of years ago. Although used very little it shows the great advance we have made in the

manufacture of these mills. It will answer nicely for heavy foundation.

Ten-inch round-cell, old style, No. N N. Price \$11.00. This answers to about the same description as No. M M, but is in a little better condition. Either of these is good value for the money.

Besides the above we have a number of new six-inch mills which are far superior to what we sent out a few years ago, but are not quite up to the present standard of excellence required by the large users. We will sell these mills at from \$12.00 to \$15.00, depending on value; will submit samples and full particulars to those interested, on application.

DOMESTIC ECONOMY.

I do not know of any thing of more importance to the inmates of the homes of our land just now than this matter of domestic economy; or, in other words, in deciding how to make what money there is go the furthest. The first real start I ever made in the world, financially, was by making the outgoes less than the incomes; and Mrs. Root and myself gave the matter as much study in those earlier years of housekeeping as we would give to one of the fine arts—perhaps even more study. We learned not only to make every thing go as far as it could be made to go, but to utilize all the waste products. In the last few years it has been my privilege to get occasional glimpses of the inside workings of many homes, and it has pained me again and again to see the losses that are permitted to go on, a great many times, because the newly married couples had not learned a better way. Well, we now have a book of almost 300 pages devoted to this very subject—*Domestic Economy; or, How to Make Hard Times Good, or Good Times Better*. Written by a physician of much experience. Just let me mention a few of the things it treats of. First, drinking-water; where to place the building; arrangement of the kitchen; doors and locks. (Oh dear me! how many times I have seen people annoyed by badly working locks and hinges! A great many times I have called for the sewing-machine oil-can, and have received smiling thanks when I showed them what just a single drop of oil would do. Sometimes with a sewing-machine screwdriver, the single turn of a screw would make every thing work nicely.) Well, let us go on. The book treats of where to buy; how to buy; wasting; good morals; education; how to care for the baby; cooking; going to school; what books to read; habits of industry; house-cleaning; recreation; rats and mice; time wasted; fuel; how to make a fire; clothing; dogs and cats; fleas and bedbugs; washing-day; broken furniture; springs and cisterns; good bread; soups; sugar; doctors; exercise; care of the body; accidents; contagion; water-closets, etc. The price of the book is \$1.00; but by buying a large lot at one time, we have been enabled to get them so we can sell them for just 60 cts. If wanted by mail, add 8 cts. extra for postage.

THE GAULT RASPBERRY.

Our creek-bottom ground has given us a thousand or more beautiful plants of the above variety. They are the strongest and finest of any thing in the way of a raspberry plant I ever saw in my life. Many of them have three or four large shoots just coming to the surface of the ground while I write. Now, I am not at liberty to sell these plants for less than 50 cts. each; but I am permitted to sell one plant to every subscriber to *GLEANINGS* for 25 cts. each, postpaid by mail, in a strong wooden box made expressly for mailing them securely. Or if any subscriber will get somebody else to subscribe we will send him a plant free; or whoever sends \$2.00 for *GLEANINGS* two years may have a plant free. Even if you have only the tiniest bit of garden, I think you should have one Gault raspberry-plant. They begin to bear when they are not much larger than a strawberry, and keep bearing right straight along until frost. Each plant will make you ten or a dozen plants next fall, and the prospect is they are going to be worth a good deal of money next year at this time. Without taking any special care, we have secured over a thousand nice strong plants from not quite a hundred plants last spring. The young plants will probably bear fruit this year, unless you pick the blossoms off. The berries are so very heavy they almost need mulching like strawberries to keep them out of the dirt, unless they are tied up to a stake or some sort of trellis. See cut and description on page 959, last year. Or we will mail you drawings from a photo, with full description of the new raspberry. A. I. R.

THE SEED AND PLANT BUSINESS BY APRIL 15.

On account of the late spring, and much frost remaining in the ground, the plant-trade is rather slow as yet; but the demand for seeds has been larger, perhaps, than in any other spring since we have been in the seed business. Onion-sets are still going down. We can offer nice Yellow Globe Danvers sets at 15 cts. per quart; 75 cts. per peck, or \$2.75 per bushel. Either White Victoria or Prize-taker, \$1.00 per peck or \$3.50 per bushel. White Multipliers, while they last, \$1.00 per peck, \$3.50 per bushel. Large-sized sets, $\frac{1}{2}$ above prices. If wanted by mail, add 10 cts. per quart for postage. By the way, the White Multiplier is the best onion to keep over winter of any thing we have come across. They are about as handsome as any onion in the world, and about as nice to eat. They never send up any seed stalks, but just keep right on multiplying; and if you gather the bulbs when the tops are dry, you can keep them without any trouble from sprouting or getting soft; and even where they have been repeatedly frozen, they stand it about the best of any onions I know of. The objection is, that they seldom get as large as other onions, and that they do not yield as many bushels per acre. I am inclined to think, however, that, with the right kind of soil and cultivation, the yield is going to be pretty satisfactory. You can plant them either in the fall or spring, as you choose. Our own, planted last fall, seem to have stood the winter with very little damage.

SEED POTATOES.

At the present writing we are sold out on Everett's Six Weeks, and second-size potatoes of all kinds except Monroe Seeding. We can furnish the latter at \$1.50 per barrel; or first size, \$2.50 per barrel. Early Ohio, Early Puritan, Lee's Favorite, Rural New-Yorker, \$1.50 per bushel or \$3.50 per barrel, so long as they hold out.

We have a nice supply of asparagus-roots, two years old, 75 cts. per 100, \$6.00 per 1000; one-year old, 50 cts. per 100, \$4.00 per 1000. The latter can be sent by mail for 25 cts. per 100.

At present writing we have a nice lot of both cold-frame and greenhouse cabbage-plants; ditto cauliflower. Onion and tomato plants are hardly ready yet to send out; but we have a splendid lot of White Plume celery-plants just right to ship. Saccaline and *Lathyrus sylvestris* have been pretty freely criticised by the press; but I feel sure the latter, at least, is worthy of trial. It has stood the severe winter without a bit of damage except to the greater part of the foliage. But they started out bright and green with the first warm weather; and when we come to dig up plants to ship, we find them going away down below any kind of clover; and the root is of such size that throwing out of the ground by frost would be almost an impossibility. During my recent visit with Pres. Clute he gave a very encouraging report of his experience with the plant at the Michigan Agricultural College. We can mail you a good strong plant for 5 cts.; saccaline, 20 cts.

DON'T SPRAY WHILE YOUR FRUIT-TREES ARE IN BLOSSOM.

On page 327 the Department of Agriculture says: "Don't spray trees when in bloom," but does not take space to give the reasons. First, it is not necessary; but second, and most important of all, it is liable to kill the bees and poison the honey if spraying is done while the trees are in blossom. Beekeepers are interested in having this matter well understood and emphasized, even if other people are not.

Kind Words From Our Customers.

BETTER THAN EXPECTED.

Dear Friend:—I want to send you a few words by way of thanks for your promptness in business. Why, sirs, a man can see the spirit of our blessed Savior in your work, and in your way of doing business. You say, "Did you get your goods all right?" Well, yes (if I know what is right); yes, every thing was even better than I expected, and I now send you another small order. W. H. BOX.
Russellville, Ala., Feb. 2.

[We try always to live up to the teachings of that Savior; but sometimes our efforts are greatly misconstrued.—Ed.]

Root's goods are always as represented, and we get what we send for. We can not keep house without GLEANINGS. H. BOSWORTH & SON.

Ford, O., Feb. 8.

I take pleasure in saying that the goods which I purchased from you last May were all first-class, every thing just as ordered, entirely satisfactory. I know that you shipped them promptly by the shipping-bill which you sent me.

East Farnham, P. Q., Dec. 28.

JOSHUA BULL.

I have received GLEANINGS regularly, which gives me much pleasure. I have read your A B C and Langstroth on the Honey-bee. I found wonders unfolding on every page. All praise to the patient investigation bestowed by the study of bees by the various authors, unfolding, as they do, the handiwork of the great Architect of the universe. All praise be to him. C. F. GARLAND.

Grose Vale, N. S. W., Oct. 2.

KIND WORDS NOTWITHSTANDING A REPORT DISCOURAGING.

I commenced the season with 120 colonies; took 300 lbs. honey, no increase. Prospects are not very encouraging for next year, but we (wife and I) intend to do our best, and trust God for results. I feel that, whatever success I have in bees or other business, I owe a good share of it to GLEANINGS, more especially to the Home talks. Fifteen years ago I had scarcely any thing; but by being faithful in "that which is least" I have been enabled to provide a home for a loving helpmeet, and now a third party has arrived on the scene—a little blue-eyed girl. We started out to give you a report on bees and honey, but some way home thoughts crowded in, and we felt like giving a glimpse of our home life. Go on with your Home talks, and success to you and yours. H. L. ROUSE.

Republic, Iowa, Dec. 14.

OUR RELIGIOUS LITERATURE AND ELECTRO-POISE.

At present writing there seem to be just four of our leading religious periodicals that are proof against the money that the Electropoise people offer. They are: *The Sunday-School Times*, *The Christian Advocate*, *The Independent*, and *The Advance*. If there are others, I should be glad to give them honorable mention. The temperance periodicals seem to be accepting the advertisements blindly; and, when called to order, the principal excuse I have been able to find is, that they are sadly in need of money. Not an agricultural paper in our land, so far as I can discover, has given them a single insertion. What sort of showing, dear friends, is this for temperance and religion and science? Dr. DePuy, of *The Christian Advocate*, who has been paraded so largely by the Electropoise people, severs his connection with that journal on the 1st of May. *Electricity* says:

"The Electropoise killed Dr. DePuy."

The same paper also says:

Not one medical man of standing, not one single scientist, can be found to indorse it. *Electricity* referred it to six of the leading electrical scientists of the country, and to a dozen of the leading physicians in New York City, every one of whom pronounced it an unqualified fraud.

"O CONSISTENCY!"

The following bright hit comes from our old friend the *Rural New-Yorker*:

Imagine a man teaching his pupils that whisky and tobacco are harmful, and then being caught by the boys, smoking a cigar on the sly!

Ernest remarks right here, that one of the best talks he ever heard on whisky and tobacco was given by a minister of the gospel who was afterward caught by the boys, smoking a cigar on the sly. There are a good many ministers of the gospel, as I happen to know, who take this journal. Dear friends, does the above searching suggestion hit you in any way?

"G & B" Web-Wire Fencing

MEETS THE POPULAR DEMAND FOR

A Harmless Fence at a Reasonable Cost.

HUNDREDS OF MILES IN USE

BY SATISFIED CUSTOMERS WHO HAVE FOUND IT

PERFECTLY SAFE for horses and cattle.

SUFFICIENTLY STRONG for vicious stock.

A SURE INCLOSURE for sheep and hogs.

A RELIABLE PROTECTION against dogs for sheep.

A SATISFACTORY FENCE to property-owners along railroads.

A FENCE COMBINED for both large and small animals.

A COMPACT MATERIAL for portable corrals.

Excellent for grapevine trellises.

Animals will not bend it to crawl under or climb over, or loosen it from the posts.

"G & B" WEB-WIRE FENCING is made of the best quality **Heavy Galvanized Steel Wire** (No. 14 in the meshes, No. 13 in the selvages) woven into diamond-shape meshes by automatic machinery, insuring a regular and smooth fabric, strengthened by **three-strand rope selvages** at both sides.

The 3x6 inch mesh is suggested for sheep-enclosures; the 4 x 8 for cattle and hogs, and the 5x6 x 10 for a very low-priced fence for any purpose named.

PRICE IN FULL ROLLS, 20 RODS EACH.

3 x 6 inch Mesh.	4 x 8 inch Mesh.	5 1/2 x 10 1/2 inch Mesh.
WIDTH. PRICE.	WIDTH. PRICE.	WIDTH. PRICE.
26 in. Rod, 37 c	36 in. Rod, 31 c	28 in. Rod, 31 c
32 in. Rod, 45 c	42 in. Rod, 36 c	36 in. Rod, 31 c
38 in. Rod, 48 c	48 in. Rod, 42 c	47 in. Rod, 36 c
50 in. Rod, 58 c	50 in. Rod, 47 c	

All widths put up in bales 20 rods (330 feet) long.

A higher price charged for lengths shorter than a full bale. Shipped direct from Chicago or New York.

What we wish to call your attention to especially is the following list of pieces and short rolls which we can sell, to close them out, at *less than full-roll prices*. In this list are some full rolls and pieces of sizes which the factory have discontinued making, and for that reason they offer them at a sacrifice to clean up the stock of odds and ends.

The above, you notice, is woven from galvanized wire, while you will find the most of the following list is 4x7-inch mesh, galvanized after being woven, and on that account very much superior, and more expensive to make. It formerly sold for about double the prices named below. It has also one number heavier wire in the meshes than the rest, being No. 13 wire throughout. All other sizes are made of No. 14 galvanized wire, woven in the meshes, and a 3-strand rope of No. 13 wire for selvage, except the 4x8, which has No. 10 wire selvage.

The wide fencing is designed to be put up alone, while the narrow widths are used at the top or bottom in connection with barb-wire or other strand fencing. Much narrow is used at the bottom of posts for hogs and sheep, while for horses and cattle it is often used at the top of posts in place of a board or rail.

All the fencing in the list, except the last few lines, is in stock in Chicago and New York, and shipments will be made from these points. That you may know what is in stock at each place we have inclosed within brackets [] all the stock in New York; and what is not so inclosed is at Chicago. The length of the pieces is given in feet, and the price per foot as well as per rod. This fencing is usually sold by the rod; but for convenience in ascertaining the cost of each piece we have given also the price per running foot, and you have simply to multiply the combined length of the pieces you require by the price per foot to get the cost. We get an additional discount if ordered in lots of 10 pieces; and, therefore, if you can use so much you can secure this fence at a price which is below what new regular stock in above list costs us at wholesale. The freight from New York to Chicago in 100-lb. lots or more is only from 2 to 5 cts. per rod; so if any of our western customers desire some of

the New York stock they need not refrain from ordering on account of freight charges.

In the following table the width in inches is given in the first column; size of mesh in second; price per rod in third; price per linear foot in fourth, and a list of the pieces, with length in feet, in fifth.

Inches.	Price.	List of Pieces, and Length in Feet.
Wide Mesh	Rod Ft.	Multiply by price per foot for cost.
26	4 x 11	32 2 bales, 20 rods (330 ft.) each.
50	"	50 3 13. [50.42]; [330 of 54 in.]
25	5 x 11	28 1 260; of 36 in. at 2 1/2 c; 43, 38, 100.
47	"	40 2 25. 60, 241.
44	4 x 7	25 206, 168 [98].
18	"	28 1 32 [145, 105]; of 22 in. at 2 c, 75, 22 [297].
26	"	34 2 102, 35, 11 [110, 95, 59, 40].
30	"	37 2 144, 50, 25, 25 [145].
34	"	40 2 90, 80, 48, 44, 43, 25, 17, 14.
38	"	43 2 29, 20, 13, 9.
42	"	46 2 25, 130.
62	"	61 3 330, 317.
66	"	64 4 [290].
14	4 x 8	25 1 1 bale 20 rods (330 ft.) each].
22	"	31 2 4 bales 20 rods (330 ft.) each].
42	"	46 2 2 bales 20 rods each, and 135 ft.]
20	3 x 6	35 2 250 ft.
26	3 x 6	41 2 119, 45 [155 117, 9].
44	"	49 3 16 24, 4 4 1/2, 4 1/2.
38	"	53 3 9.
50	"	65 4 11 + 5 5.

O. H. O. RRE AT MEDINA THE FOLLOWING:

14	4 x 7	25	1	166	35	23
32	"	31	2	107	68, 35.	
30	"	37	2	52	36, 29	19, 18, 13.
42	"	46	2	7	6	
18	8 x 13	25	1	68, 36 in.,	100 ft. at 3 c.;	45 in., 247 ft., 3 1/2 c.

In lots of 5 pieces, 5% off. Not less than 10 pieces in one order, 15% off from above prices; 20 pieces or more, 20% off from prices in this last table only. Staples, 1 1/4 in., 5 cts. per lb.

WIRE NETTING.

SHORT ROLLS AT FULL-ROLL PRICES OR LESS.

We have the following lot of wire netting of various sizes and widths in short or odd-length rolls. Very often a person wants a piece and can not buy it cut from a full roll without paying double price. You may be able to find in this list just what you need, or very near it. Even if you want more than a full roll you will find the prices at which we offer these to be in most cases less than full-roll price.

Of 2-inch mesh No. 19 wire, we have the following remnants and short rolls at 1/2 c per square foot. The figures at the left give the width in inches, and the other figures give length of each piece in feet. Multiply this by the width in feet, then take one-half of the result to find the price of each piece.

18	138.
30	107, 107, 144, 146, 148.
36	40, 49, 53, 54, 54, 56, 67, 70, 73, 83, 83, 83, 86, 90, 90, 91, 92, 93, 94, 96, 96, 100, 100, 102, 102, 102, 107, 109, 116, 116, 116, 116, 118, 120, 122, 124, 124, 124, 125, 128, 129.
48	62, 83, 83, 94, 94, 95, 98, 98, 100, 108, 108, 112, 112, 113, 119, 122, 123, 124, 124, 125, 131, 132, 138, 138, 138, 140, 140, 140, 143, 144, 144, 145, 145, 145, 146, 146.
54	72, 88, 88, 143.
60	103, 110, 126, 134, 36, 139.
72	15, 27, 60, 61, 72, 85, 85, 87, 100, 119, 123, 130, 138, 142, 144, 144, 144.

Of 2 inch No. 20 we have the following pieces at one-half of a cent per square foot, less 10 per cent. Arrive at the price in precisely the same way as above, and take 10 per cent off.

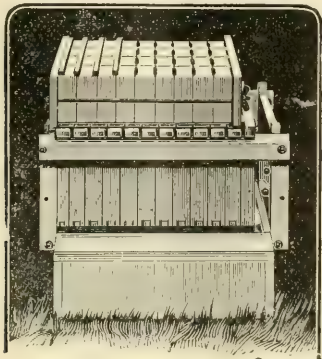
30	1 79
36	48, 76, 81, 88, 100, 103, 103, 109, 116, 122, 126, 126, 128, 128, 128, 136, 140, 141, 144, 146, 146.
48	76, 116, 128, 144, 146.
54	145.
60	17, 113, 136, 139, 144, 144.
72	70, 139.

In the following list we give first the size of mesh; next, the number of wire; next, the width in inches; then the length in feet, and, finally, the price of the whole piece, so you will have no figuring to do.

2	in., No. 15, 18 in. x	75 ft., at 1.60; 18 in. x 74 ft. at \$1.55.
2	in., No. 15, 18 in. x	55 ft., at 1.20; 54 in. x 122 ft. at \$8.00.
2	in., No. 15, 60 in. x	20 ft., at 1.50; 72 in. x 36 ft., at \$3.00.
2	in., No. 15, 72 in. x	33 ft., at 3.00.
2	in., No. 16, 72 in. x	36 ft., at 2.3; 72 in. x 55 ft., at \$3.60.
2	in., No. 16, 72 in. x	55 ft., at 3.60.
3	in., No. 14, 72 in. x	70 ft., at 5.25; 72 in. x 100 ft., at \$7.50.
1 1/2	in., No. 19, 3 ft. x	129 ft., at 3.85.
1 1/2	in., No. 18, 4 1/2 ft. x	118 ft., at 6.35.
1 1/2	in., No. 19, 3 1/2 ft. x	85 ft., at 2.00; 4 x 55 ft. a' \$1.50.
4 1/2	x 20 ft. at 60; 5 x 19 ft. at 65; 6 x 44 ft. at \$1.90.	
1 1/2	-inch No. 18, 3 x 64 ft. at \$1.75.	
1 1/2	-inch No. 16, 3 x 5 1/2 ft. at .25; 2 1/2 x 70 ft. at \$3.00.	
4	x 24 ft. at \$1.65; 6 x 102 ft. at \$6.10.	

In lots of 5 pieces, any one or assorted kinds, deduct 5%; 10 pieces, 10%; 25 pieces or more, 15%. Better name a second or third choice, in case your first be gone. **The A. I. Root Co., Medina, O.**

THE Aspinwall Hive



THE HIVE FOR BEES.

THE HIVE FOR BEE-KEEPERS.

Aspinwall Manufacturing Co.,
Jackson, Mich.

(In responding to this advertisement mention GLEANINGS)

Notice!

We beg to announce that we have completed arrangements with the Porters whereby we secure for this country the control of the sale of that very excellent and almost indispensable implement,

The Porter Bee-Escape.

It will be manufactured by the Porters, as formerly, but write to us for prices in both large and small quantities.

The A. I. Root Co., Medina, O.

Bee-supplies Cheap! For prices write W. D. SOFER & SON, Box 565, Jackson, Mich.

Every Farmer

Ought to read the Rural New-Yorker.
(Published weekly.)

It is the business farmer's paper, and a most reliable authority on agricultural and horticultural subjects. Frauds and humbugs fear it. ONLY \$1 A YEAR. Send for sample copy to

THE RURAL NEW-YORKER, New York.
We have made arrangements so that we can send and GLEANINGS for \$1.75 a year.

BEE-KEEPERS' SUPPLIES FOR 1895.

Such as Dovetailed Hives, Sections, Comb Foundation, Extractors, and every thing else used by a bee-keeper. All late improved goods. Immense stock. Goods sold at wholesale and retail. Write for our

DISCOUNTS FOR EARLY ORDERS.

Alsike clover and Japanese buckwheat furnished at lowest market price.

Address **JOSEPH NYSEWANDER, Des Moines, Iowa.**
In writing advertisers please mention this paper.

WE WILL PREPAY

Freight charges on orders for Root's polished sections, and 16-section white basswood shipping-cases, at his prices, to be shipped from factory to points within 300 miles, in lots of 5000 and 200 or over respectively. Send for catalog.

B. WALKER, Evart, Mich.

Please mention this paper.

420 Lbs. Average

Is what my bees gave that I moved to the man-grove; those at home, 300 lbs. each; **5-banded bees, too.** Queens, *bred for business* from this stock, will be sent in 1895 for \$1.00 each until May; per doz., \$8.00. Circular free.

J. B. CASE, Port Orange, Fla.

1 COLONY ITALIAN BEES, in 10-frame Langstroth hive, \$4.50; 2 or more, \$4.00 each; tested Italian queen, \$1.00; 2 or more, 90c each. Address **OTTO KLEINOW, 122 Military Ave., Detroit, Mich.**

Bees

In good new eight-frame L. hives, good full swarms, \$4.00. Three-frame nuclei, with queens, \$2.25.

W. H. STANLEY,

Dixon, Lee Co., Ill.

SOUTHERN AND EASTERN AGENCY

FOR A. I. ROOT'S BEE-KEEPERS' SUPPLIES
AT A. I. ROOT'S PRICES.

RAWLINGS IMPLEMENT CO.,

Formerly Balto. Farm Implement Co.

Jobbers & Dealers in Farm Implements & Machinery

209 S. Charles St., Baltimore, Md.

23-9eol

OTTUMWA BEE-HIVE FACTORY.

Bee-keepers, look to your interests. Every thing in the line of bee-supplies constantly on hand. Price list free. **GREGORY BROS. & SON,** 1-23a Ottumwa, Ia. South side.

eioif

Please mention this paper

Patents Pending

On new process, new machines, new product, in manufacture of comb foundation.

Result:

Lowest prices, best work.
Samples and price list free.
Wax wanted.

W. J. Finch, Jr.,
Springfield, Ill.

Please mention this paper.

Fruit and

Bee Ranch for Sale.

Address **REV. L. J. TEMPLIN, Canon City, Col.**

HONEY COLUMN

CITY MARKETS.

KANSAS CITY.—*Honey.*—The stock of comb honey is large; market well supplied. Fancy white 1-lb. combs, 13; amber, 11. Receipts of extracted light; white, 7; amber, 5½@6; Southern, 4½@5. Beeswax, 22.

HAMLIN & BEARSS,
Kansas City, Mo.

April 18.

CHICAGO.—*Honey.*—We report our market well cleaned up on fancy white comb honey in 1-lb. sections. A neat package and a fancy article would sell quickly at 14c. No. 2 comb, or dark, would not sell at over 10@11. We report better inquiry for extracted, at 5@7, depending on quality. Beeswax selling at 30c.

S. T. FISH & CO.,

April 17.

189 South Water St., Chicago, Ill.

CINCINNATI.—*Honey.*—Demand is quiet for all kinds, with a fair supply only on the market. We quote comb honey at 12@14 cts. for best white. Extracted honey at 4@7, according to quality. Demand is good for beeswax, with a scant supply. It brings 25@31 cts. on arrival for good to choice yellow.

CHAS. F. MUTH & SON,
Cincinnati, O.

April 19.

CHICAGO.—*Honey.*—The supply of comb honey is very light, and it looks as though all would be sold unless it be some California that is being spread upon the street. Best grades of white comb, 14c; dark, 8@10. Extracted, 5½@7, as to quality, body, flavor, and package. Beeswax, 28@31.

R. A. BURNETT & CO.,

April 18.

163 So. Water St., Chicago, Ill.

BUFFALO.—*Honey.*—The demand for honey is very light; stock is getting well cleaned up, and there remain only a few tail ends unsold. Moderate sales of fancy, 13@14; choice, 11@12; other grades range from 7@9. Buckwheat honey moves very slowly here; would not advise any shipments. Extracted honey is also very quiet, ranging in price from 4@5. Beeswax, 25@29, according to quality.

BATTERSON & CO.,
Buffalo, N. Y.

April 17.

ALBANY.—*Honey.*—We have received quite a lot of comb honey during the past few days—one lot of paper cartons from Buffalo; but the weather begins to get warm, and the demand is falling off. We quote clover at 11@12; buckwheat, 8@10.

CHAS. McCULLOCH & CO.,

April 18.

Albany, N. Y.

PHILADELPHIA.—*Honey.*—The supply of comb honey is getting low, but there is correspondingly little call. Good white clover, some broken combs, sold at 9½c. We quote comb, 9½@12; extracted, 5@6. Beeswax, 31.

WM. A. SELSER,

April 18.

10 Vine St., Philadelphia, Pa.

BOSTON.—*Honey.*—Comb honey is in good demand, with a light supply; and, should present demand continue, we could get 14@15 for fancy white comb in 1-lb. sections.

E. E. BLAKE & CO.,

April 18.

Boston, Mass.

CLEVELAND.—*Honey.*—There is no material change in the prices of honey since our last report; if any thing, the demand is lighter. Strictly fancy No. 1 white is selling at 13c; No. 2, 11. The demand for extracted is livelier, and prices are from 6@8. Beeswax, 28@30.

WILLIAMS BROS.,

April 17.

80 & 82 Broadway, Cleveland, O.

DETROIT.—*Honey.*—Very little No. 1 white comb honey in this market, with fair prospect for selling out before new comes in. Extracted, 6@7; sales slow. Beeswax is in good demand at 30@31.

M. H. HUNT,

April 18.

Bell Branch, Mich.

DENVER.—*Honey.*—There is an improvement in our market for both comb and extracted honey. We quote No. 1 comb, in 1-lb. sections, at 11½@12½; No. 2, 9@10. Extracted, No. 1 white, in 60-lb. cans (2 in 1 case), 6@7. We are short on No. 1 comb, and could handle a quantity to advantage.

R. K. & J. C. FRISBEE,

April 20.

Denver, Col.

KANSAS CITY.—*Honey.*—The demand for comb honey is light; demand for extracted, good. We quote 1-lb. comb, No. 1 white, 14; No. 2, 12@13; No. 1 amber, 11@12; No. 2, 8@10; extracted, 5@6½. Beeswax, 22@25.

C. C. CLEMONS & CO.,
Kansas City, Mo.

April 18.

ST. LOUIS.—*Honey.*—We have fairly good trade in honey, and on account of early receipts of new crop expect an improvement. We quote comb, 10@13; extracted, in cans, 6½@7; in barrels, 5@5½. Prime beeswax scarce at 30½@31.

D. G. TUTT GROCER CO.,

St. Louis, Mo.

Apr. 18.

ALFALFA HONEY, very white, thick, and rich. Two 60-lb. cans at 7c. Same, partly from cleome (tinted), 6c. Samples, 8c.

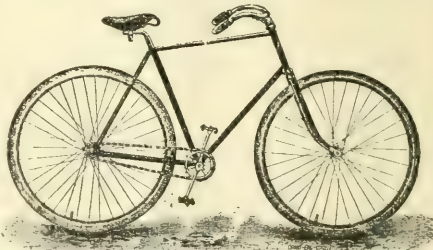
OLIVER FOSTER, Las Animas, Col.

No. 1 extracted honey in 50-lb. pails at 7c per lb.—\$3.50.

J. B. MURRAY, Ada, O.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 187rdab and Prompt.

High=GradeBicycles



ONLY \$60.00.

These are high-grade in every respect, both as to material and workmanship. We have personally tested them thoroughly, and know that they are first-class.

Tires, Morgan & Wright or Hartford single-tube pneumatic tires; wheels, 28-inch, wood rims; ball bearings throughout; pedals, rat-trap or rubber; handle-bars, raised or drop; frame of best quality of drawn seamless steel tubing; weight, 28 lbs. The entire bicycles are built by one of the largest bicycle works in the country. The extremely low price is owing to the fact that they are made on '94 machinery, and under another name-plate. We can furnish gentlemen's or Ladies' wheels at this price. Write for circular.

THE A. I. ROOT COMPANY,
MEDINA, O.



Untested Italian Queens.

Rearing from a queen valued at \$50. Can't be excelled as honey-gatherers; 75 cents each. Address

W. J. Forehand, Fort Deposit, Ala.

27 In responding to this advertisement mention GLEANINGS

NUCLEI. 1, 2, or 3 S. frames, 90 cents each. Queens from imported stock. Hardy, beautiful, and prolific. Untested, \$1;

tested, \$1.50. Portico S. hives, 75 cents. eit f

MRS. OLIVER COLE, SHERBURNE, CHAMANGO CO., N. Y.

27 In responding to this advert. ment mention GLEANINGS.

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Look Here, Bee-keeper!

If you are in need of bee-supplies, write for catalog and price list. Every thing sold as cheap as the cheapest.

Kenton, Hardin Co., O. W. E. Smith.

☞ In responding to this advertisement mention GLEANINGS

PURE ITALIAN BEES.

By the pound, 90 cents. Untested queens from imported mother, 90 cts. Two-frame nuclei, both frames containing brood with all adhering bees, and untested queen from imported mother, \$2.00. Tested queens, \$1.50. Satisfaction guaranteed. I will be ready to ship by May 25th.

**MRS. A. F. PROPER,
PORTLAND, JAY CO., IND.**

☞ In responding to this advertisement mention GLEANINGS

For Sale

200 colonies of Italian and hybrid bees in 8-frame Langstroth hives. Italians, \$5.00; hybrids, \$4.50; delivered at the depot in Jefferson free of charge. Also a lot of bee-supplies.

MRS. C. GRIMM, Jefferson, Wis.

Your Orders

for untested Italian queens will be promptly filled by return mail. These queens are carefully reared from fine stock, are large, healthy, and prolific. 75c each; \$8.00 per dozen. Tested, \$1.00 each.

J. W. K. SHAW & CO.,

Iberia Par.

Loreauville, La.

☞ In responding to this advertisement mention GLEANINGS

HEADQUARTERS

For those large beautiful Golden Italians. One untested queen, 80c; 3 for \$2.00. One warranted queen, \$1.00; 3 for \$2.50. One tested, \$1.50; One select tested, \$2.00. Satisfaction guaranteed.

C. M. HICKS, Hicksville, Wash. Co., Md.

BEES FOR SALE.

Seven strong colonies in Dovetailed hives. Also honey-extractor; 48 empty combs; several bee-books, etc. Will take \$25.00 for the outfit.

R. L. WEBER, Pevely, Jeff. Co., Mo.

3=Banded

**TESTED
ITALIAN Queens,**
from my own imported
queens, \$1.00 each.

Max Brauer, Beeville. Bee Co., Tex.

**FAY'S
PROLIFIC
RED
CURRANTS**

Are a Paying Crop to Grow for Market.
I have a large quantity of extra strong
well-rooted bushes for sale cheap.

**FRED H. BURDETT,
CLIFTON, NEW YORK.**

IRISH DAISY POTATOES.

I have a few barrels of choice unsprouted potatoes of this new late variety that I will sell at \$4.00 per barrel. Speak quick if you want them.

C. B. BELL, Adamsville, Musk. Co., O.

☞ In responding to this advertisement mention GLEANINGS

36 BLACK MINORCA EGGS FOR \$1.00

H. Barber, Adrian, Mich.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must say you want your ad in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Old combs in frames. *Describe*, with price. **W. L. COGGSHALL, West Groton, N. Y.**

WANTED.—To exchange Universal wood-worker, one groover, one dovetailer, and one cutter-head table; also short jointer, all in good order. What have you to trade for one or all?
W. S. BELLOW, Ladora, Ia.

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 6 and 12 inch Root foundation mills for wax, honey, or offers.
I. J. STRINGHAM, 105 Park Place, New York, N. Y.

WANTED.—To exchange raspberry and blackberry plants, \$6 per 1000, bees \$5, Japanese buckwheat, for beeswax. **A. P. LAWRENCE, Hickory Corners, Mich.**

WANTED.—To exchange supplies and other goods for honey. **O. H. HYATT, Shenandoah, Iowa. 20tf**

WANTED.—To exchange 100 8-frame hives, with comb, smokers, bee-escapes, 10-inch foundation-mill, shipping-cases, a general outfit of Root's supplies, for offers. **OSCAR KERNS, Cowgill, Mo.**

WANTED.—To exchange bee-keeping supplies for full colonies of pure Italian bees, or two and three frame nuclei. Send me prices and get my annual price list. **GEO. E. HILTON, Fremont, Mich.**

WANTED.—To exchange safety bicycle, 28-inch pneumatic, bees, queens, **B. P. ROCK, L. C. B. Leghorn and L. Brahma eggs, for honey or bee-supplies. CHAS. H. THIES, Steeleville, Ill.**

WANTED.—To exchange poultry and eggs (3 best kinds) for thin foundation, sections, shipping-cases, or new smokers. **D. F. LASHIER, Hooper, Broome Co., N. Y.**

WANTED.—To exchange warranted Italian queens bred from imported mothers, for poultry or eggs, nursery stock, seeds, or plants, or offers.
J. H. GARRISON, 6900 Bleecok Ave., St. Louis, Mo.

WANTED.—To exchange S. C. Brown Leghorn pullets, at 75c, and eggs from breeding-pens, at \$1, for pneumatic safety bicycle in good repair. **Write quick. G. D. CLAPP, Chatham, O.**

WANTED.—To exchange eggs from choice fowls and ducks, finest stock, for Italian queens.
LESLIE STEWART, Jefferson, N. Y.

WANTED.—To exchange second hand 60-lb. cans, in good condition (boxed); delivered at your station at 25c each, for worker combs, or white comb or extracted honey, crop of '95.
B. WALKER, Evart, Mich.

Black and Hybrid Queens For Sale.

A few first-class black and hybrid queens ready to ship; blacks, 25c; hybrids, 30c.

W. J. FOREHAND, Fort Deposit, Ala.

TESTED QUEENS

done to do away with swarming. If done early enough it is usually successful. It will be seen that the queens displaced by these young queens are never more than a year old; in fact, they are fine, tested, Italian queens, **RIGHT IN THEIR PRIME**; yet, in order that they may move off quickly, and thus make room for the untested queens, they will be sold for only **ONE DOLLAR**. Or I will send the **REVIEW** for 1895 and one of these queens for only \$1.75. For \$2.00 I will send the **REVIEW**, the queen, and the book "Advanced Bee Culture." If any prefer the young, laying queens from the South, they can have them instead of the tested queens, at the same price. A discount on large orders for untested queens. Say how many are wanted, and a price will be made. Orders can be filled as soon as it is warm enough to handle bees and ship queens with safety.

W. Z. HUTCHINSON, Flint, Mich.

Established in 1861.

**Please Cut Out
This whole Advt.
Sign, and Mail.**

Please send me the **American Bee Journal** each week for Three Months. At the end of that time I will remit \$1.00 for 1 year's subscription, or 25c, in case I decide to discontinue.

To the Publishers of **American Bee Journal**,
56 Fifth Avenue, CHICAGO, ILL.

Name _____

P. O. _____

State _____

Sample Copy Free!

NEW SUBSCRIBERS are given a free copy of Newman's "Bees and Honey"—160-page book—upon receipt of \$1.00 for a year's subscription to the **Am. Bee Journal**, or this book will be sent at the end of the 3 months, as per above offer. You ought to have the weekly **Am. Bee Journal**, even if you have **GLEANINGS**. For \$1.75 we will send you the **Bee Journal** and **GLEANINGS** for a year, besides a copy of the "Bees and Honey." Address your order as above, or for sample copy.

E. KRETCHMER, RED OAK, IOWA,

SENDS FREE HIS CATALOG OF 72 ILLUSTRATED PAGES; DESCRIBES EVERYTHING USED IN THE APIARY; BEST GOODS AT LOWEST PRICES. CAPACITY ONE CARLOAD A DAY. WRITE AT ONCE FOR HIS CATALOG.

4-8

I told you so.

Mrs. Atchley:—The one-frame nucleus I got of you last spring gave me 120 well-fitted one-pound sections.

J. A. SMITH, Heber, Utah, Oct. 9, 1894.

Now, haven't I told you that it will pay to send bees north in the spring?

One-frame nucleus, \$1.00; 10 or more, 90c each. Bees by pound, same price. Untested queens to go with them, 75c each.

Untested queens by mail, \$1.00 each; \$5.00 for 6; \$9.00 per dozen, till June; after, 75c each; \$4.25 for 6, or \$8.00 per dozen. I breed the leather-colored Italians, 5 bands, and Carniolans, in separate yards, at safe distance.

Tested, 3 bands, \$1.50 each; 5 bands or Carniolans, \$2.50 each.

Fine breeders of either race, or imported queens, \$5.00 each. Full colonies with untested queens, \$6.00.

Ask for discounts to dealers, and by quantities.

The only steam bee-hive factory in south Texas. Root's goods, Dadant's foundation, and Bingham smokers.

Safe arrival on every thing guaranteed. Send for FREE catalog that tells all about raising queens.

JENNIE ATCHLEY, Beeville, Bee Co., Texas.

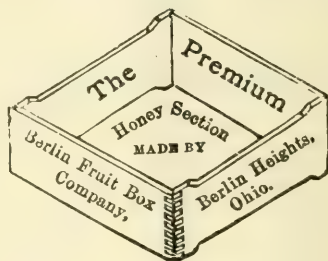
Please mention this paper.

Woodcliff Business Queens.

Breeder, selected from 1000 queens, some producing 400 lbs. of honey to colony. State what you want, and send orders now for early delivery. Guaranteed queens, 75c; special low price in quantities. Send for descriptive catalog.

Wm. A. Selser,
Wyncote, Pa.

In responding to these advertisements mention this paper.



WE have a large stock of **SECTIONS** now ready, both No. 1 and No. 2. Write for special prices on winter orders in large or small lots, including all other Supplies. Also **Berry Crates and Baskets** made up or in flat.

Address **BERLIN FRUIT BOX CO.,**
eiff **BERLIN HEIGHTS, O.**

GOOD GOODS are always in demand.

LOW PRICES are appreciated in these times.

PROMPT SERVICE is a necessity in business.

We combine all three.
Write for free catalog and price list.

G. B. Lewis Co., Watertown, Wis.

GLEANINGS IN BEE CULTURE

JOURNALS DEVOTED
TO BEES
AND HONEY
AND HOME
INTERESTS.

ILLUSTRATED
SEMI-MONTHLY
Published by THE A. B. J. CO.
\$1.00 PER YEAR MEDINA, OHIO.

Vol. XXIII.

MAY 1, 1895.

No. 9.

STRAY STRAWS FROM DR. C. C. MILLER.

FOUL-BROOD CURE of McEvoy, says *B. B. J.*, was advocated by Shirach in 1769.

HONEY, applied outwardly, is reported in *B. B. J.* as a satisfactory cure for chilblains and chapped hands.

THE USUAL number of pages in *GLEANINGS* is eight more than usual, and this time sixteen. If that thing goes any farther I'll have to sit up all night to read *GLEANINGS*.

HOW MANY bright bee-keepers are coming to the surface as writers! [Yes, I've noticed that there were more lately. I am glad of it, because it infuses new blood into our literature.—ED.]

THE "LONG IDEA" hive, if I am not mistaken, was just as popular with Poppleton in Iowa as in Florida. This in reply to A. I. R.'s query on p. 320. [Then is it a question of locality, or of the man?—ED.]

A 12-FRAME HIVE is what Observer in *Progressive* says Ernest Root has "gone and done." How's that, Ernest? Have you been getting up a new hive so much on the sly that I haven't noticed it? [See Editorials.]

F. L. THOMPSON, in *A. B. J.*, wants bee-journals to be more like conventions in having pithy, good-natured discussions. Good idea. [That's so; but the editors must have the help of their contributors.—ED.]

BOARDS $\frac{3}{8}$ thick were tried by Ed. Goodrich, for hives. It was hard to keep them warm enough for brood-rearing in spring. In the fall, combs and bees were kept damp by the ready condensation of moisture.—*A. B. J.*

CAGING THE QUEEN at swarming and cutting out cells twice, as given by E. France, p. 304, is a good plan that I formerly practiced, only I freed the queen at the last cutting of cells instead of keeping her caged ten days longer. I believe you'd like that better, friend France. I learned the plan from Doolittle.

I SECOND the motion you make on p. 312, Mr. Editor, to try to get an appropriation from Washington for the N. A. B. K. A., and may be Canada could chip in too; but I don't see why that should make any less effort in each State.

THE NEBRASKA *Queen* has a warning from Prof. Bessey against sacaline. After growing roots obtained direct from Russia, and giving it a fair trial, he sums up his opinion in these words: "I am confident that it is a rank fraud." Alas! farewell, sacaline.

"HOW MUCH CONVENTION time should be given to essays?" is a query in *A. B. J.* One man wants the time all taken up with essays, "unless the discussions can be well managed;" two or three would rather have no essays, and nearly all agree that essays should be short, merely used to start discussion.

HONEY OR BUTTER? Dr. Peiro, in *A. B. J.*, says of honey, "Its nourishing properties are certainly equal to, and for many greater than, that of the best butter; and in view of the danger of butter from cows affected with tuberculosis he raises the question whether it would not be wise to substitute the perfectly safe article, honey."

DOOLITTLE is right, p. 313, that bees gnaw foundation whenever they're idle, but I've found it only at the close of the honey season, for the simple reason that they've had the chance only at that time. I've had to put on sections in advance of their need, for want of time later; but the bees are busy in the brood-chamber, and don't gnaw sections then.

BURNING SULPHUR made a yellow deposit for you, Mr. Editor, p. 317. I've had a few sections at different times discolored with sulphur, and it was always a greenish color. I suspect it makes a difference on what surface the deposit is made. [My "yellow" you might call a "greenish color." The difference, I suspect, is not in color but in the individual.—ED.]

FIGHT FAIR, friend Boardman. On page 294 you teach that a queen doesn't go into the super over a square hive; but that in the long shallow hive, queen-excluders and other ex-

pensive devices are needed. My queens are not hindered in any way from going into the supers, and it's a very rare thing for them to do so.—[Yes, reports seem to show that this is so.—ED.]

RAMBLER, p. 299, thinks bees don't sting hogs, on account of the smell. When rattlesnakes were plentiful here—I killed 11 my first summer in Illinois—hogs killed them, and I never heard of a hog being hurt by a rattler. It was said the snake couldn't bite through the hog's hide. Can a bee sting through it? Anyway, how much better than a sting would it be to smell like a hog?

HONEY FOR BABIES. "M. Forester Dietz has had his infant son, now aged seven months, reared entirely with the bottle which contained milk sweetened with honey. Has already consumed 25 lbs., is strong and plump, has never had a single pain, and sleeps soundly the whole night. At first the child received half milk and half honey liquefied with water; now he has four parts milk and one part honey liquefied with water."—*Bulletin d'Alsace-Lorraine*.

CHAPMAN HONEY-PLANT seed is offered free in *B. B. J.* Don't fool with any big quantity, friends. I suppose acres of it were planted in the U. S., and I believe it's the only honey-plant that the government ever furnished free to bee-keepers; but if there's a single man who now cares to occupy ground with it he is keeping very still about it. [The Chapman honey-plant was not a success in this country; but the bees make a great show on a single plant.—ED.]

RAILROADS in England have "agreed that bees in hives sent in truck-loads to the moors during the heather season, should be conveyed at 6d. per truck per mile, station to station, owner's risk, with a minimum charge of 7s. 6d."—*B. B. J.*, page 14. That means, if I understand rightly, that a carload of bees will be taken 40 miles for \$5.00. How much would it cost in this country? [Bees by freight go as third class. The rate on a carload of bees to Cleveland (about 40 miles) would be 10c, making the total freight \$20.00, or just four times as much as in England; and this, notwithstanding that railroad companies in the mother country pay enormous taxes in support of the government.—ED.]

Is JAKE SMITH a plagiarist? or have the people across the water been getting points from him? At any rate, that idea of measuring bees' tongues is having very serious attention in France. Actual measurements with ingenious glossometers show a great variation in the different colonies of the same apiary. By careful selection persistently followed up, why may not a permanent strain of red-clover bees be established? [If our queen-breeders would spend more time in developing a strain of red-clover bees and less to yellow bands it would be better for the honey-producer. We are

getting a large number of complaints from bee-keepers who have purchased the yellow stock. The past winter has shown that the majority of the colonies of this strain are practically good for nothing so far as hardness is concerned. As I have before said, the tendency is to sacrifice every thing for color. In a few rare instances, other good qualities are present. Yes, let's have long-tongued, long-lived, long-houred workers.—ED.]



FEEDING BEES.

DOES IT PAY? THE SUBJECT REVIEWED UNDER NEW SIDELIGHTS; A PRACTICAL ARTICLE FROM A PRACTICAL MAN.

By H. R. Boardman.

There are some kinds of feeding that pay well, and other kinds not so well, and some kinds not at all. I will try to show what kind of feeding pays, and how it pays, and what doesn't pay, and why.

After the honey season is past, if there are any light colonies in the yard that lack only winter stores to make them good promising colonies for another year, I am sure that the expense of a few pounds of sugar, and the trouble of feeding it, will be repaid with good interest unless such colonies are to be united to prevent increase. I don't think this will need the support of any very long arguments. It is often said, though, that there should be no light colonies at the close of the season, with good management. I wish I could manage so wisely; but I can not, and I am assured by the reports that others do not, so the need of feeding is apparent in this case. These late-fed colonies make the very best to winter, and for the next season if the work of feeding has been thorough. They should be fed enough to carry them not only through the winter, but through the early spring as well. The giving of liquid feed is more profitable in the fall than in the spring. The fall feeding gives young bees for winter. Spring feeding, by exciting the bees to activity, induces them to fly out, when they are chilled by the cold spring winds, and many will thus be lost at a time when there are no bees to be spared. It may induce robbing also, and much of their vitality will be spent in useless activity in marauding.

If colonies should be found light in early spring, there is one kind of feeding that I would always recommend. Place combs of sealed stores next to the brood-nest; and it pays to be provided with these for an emergency. Upon the first cost of the brood-nest depends very much the future value of the colony. The old bees are in sufficient force early to do the work

if they but have stores and a good queen; but not so later on.

When early pollen appears from the willows and maples, which is usually in the fore part of April in this locality, the queen gradually expands the brood-nest by laying around the outside until the first or earliest in the center of the combs begin to hatch, when she will return to the center and commence to refill the combs with eggs as the brood hatches. In the mean time the old bees fail rapidly, and there comes a time when the disappearance of the old bees gives the colony a very feeble appearance; and, indeed, it is a very critical time, and must be bridged over by the few young bees already hatched. A cold spell at this time is sometimes disastrous, although the sealed brood generates considerable warmth, which helps to protect the central brood-nest, which is now being filled with eggs.

It will be readily understood that feeding at this time would do very little good, and only imperil the colony by exposure to robbing. Many colonies will be so weak in workers as to refuse feed entirely. About the first of May the colonies will usually begin to build up rapidly from the hatching brood. At this time, or as soon after as the weather and the condition of the bees will warrant, the giving of liquid feed may be safely and profitably begun; and the brood raised from the stimulus of the feeding will furnish workers for the early honey-gathering. The natural pollen-supply is of much importance in connection with the feed, and should be carefully watched.

FEEDING UP TO THE SWARMING SEASON.

Feeding before the swarming season to supply winter stores is another kind of feeding that I have practiced with quite gratifying results for several years. It is expected that worker-bees, raised on honey for the honey-harvest, will more than pay the expense of raising them; but it is not very gratifying in a poor season to have only enough honey to raise them, and none to go into the surplus for the bee-keeper's share. By the time the surplus season begins (10th to 15th of June in this locality), the brood-combs will usually be exhausted of stores, or nearly so, and no work can be expected in the sections until these are filled to their utmost capacity; and the amount of the choicest honey of the season required for this purpose would be an important item if secured in the sections, especially in a poor season.

It occurred to me some years ago that sugar, exchanged for honey at the prices of the two, if the exchange could be economically effected, ought to be a good trade for the bee-keeper, and it is this kind of exchange that I have been trying to make with my bees by supplying them with sugar for winter stores before the honey season, and allowing them to put the honey into the sections for my share in return. The advantages of this plan are, it furnishes stores

for wintering the bees, that are unsurpassed by any gathered from natural sources. It answers at once for stimulative and store feeding. It keeps brood-rearing going without interruption from failure of the natural honey-yield. It takes the place of the same amount of honey that will be stored in the sections. I expect to commence feeding only moderately—just sufficient to stimulate brood-rearing and increase as the season advances, so that, at the beginning of the surplus season, the combs will be filled and sealed over outside of the brood-nest. It is hardly necessary to explain that these stores will not be used by the bees except in an emergency, but will remain for winter stores and for brood-rearing the following spring. I want the hives well filled with brood at the beginning of the surplus season—the more the better; and if all combs outside of the brood are occupied with sealed stores I should not expect to wait long for work to begin in the sections, provided the bees were gathering any honey; but the persistence with which they continue to store in the brood-combs at this time is often disappointing. But, “the best-laid plans of mice and men gang aft agley,” and this plan is not without its difficulties and perplexities. The prosperity of the bees under such generous treatment encourages swarming; and just as our plans may all be perfected the bees often upset them by introducing something of their own, and swarming out, leaving our well-filled hive and our well-laid plans for prospective surplus, to start business anew. Then we meet the same old difficulty—no more nor less than under the influence of a liberal honey-yield from the flowers. To get the full benefit of this plan, then, it is necessary to prevent swarming, or return the swarms; or if increase is desired, feed up the new colony.

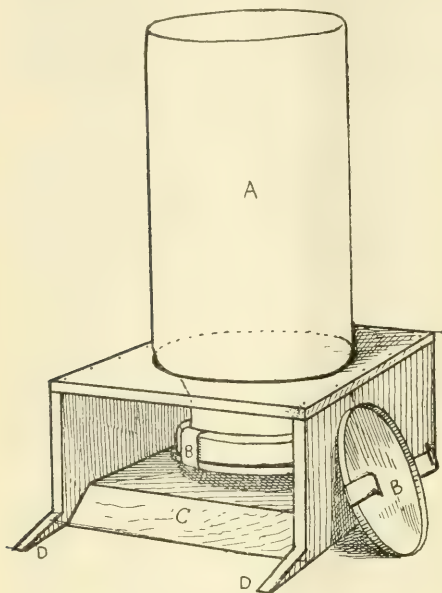
I mention this difficulty, as it seems to be the most serious one in this plan. I think most practical bee-keepers would feel able to overcome this in some way. Almost every bee-keeper has a non-swarming remedy; but mine is—*young prolific queens*.

East Townsend, O.

[Mr. Boardman has made the subject of feeding a very careful and critical study for the last four or five years; and it is only now that he has reduced this valuable experience to writing. Of course, many of the veterans will say there is nothing new to say on the subject of feeding. In a certain sense that is true; but in another sense it is not true.

Regarding fall feeding, I might explain that I called on Mr. Boardman last summer, after the honey-flow, and he was feeding his bees with his entrance feeder, right along during the robbing season. The construction of the feeder is such that it is not necessary to open the hive, and almost impossible for robber-bees to get at the feed without going clear through the entrance, past the sentinels, and getting out again with their load *if they can*. At the time of my visit friend B. was not ready to have his feeder described; but now that he has it fully perfected he has consented to have it done, and

I take pleasure in showing you the illustration. A is an ordinary fruit-can, and B a special cover having a flange sticking up high enough so as to make what is known as an atmospheric feeder, on the Hains style. This is then inverted and set right down over a hole in a box so constructed as to fit closely to the entrance on one side. The points D D project clear in,



BOARDMAN'S FEEDER.

making it necessary for robber-bees, if perchance they are able to pass the guards, to go clear into the hive around D. It is altogether improbable a robber could accomplish her pesky meanness without being "caught in the act."

I have not been advised as to whether Mr. Boardman expects to sell these feeders; and while the main principle is old, the method of application is new. All together, he has, in my opinion, a *moral* right to the control of the sale.

I have examined a great many entrance feeders, but I do not know of any that seem to secure so perfectly the result as this does. Indeed, I never saw any thing yet attached to the entrance in the way of a feeder but that would make more or less of a hubbub in the apiary; but Mr. Boardman's bees at the time I visited his yard were as quiet and peaceable as if clover honey were coming in. This happy result I attribute largely to the projecting points D D.

In our next issue, Mr. Boardman will say something about feeding back, sugar honey, etc.—Ed.]

ARRANGEMENT OF BEE-FORCE.

THE BEST WAY TO STRENGTHEN WEAK COLONIES; A SEASONABLE ARTICLE.

By C. A. Hatch.

The success or failure of a commander of an army depends much on the arrangement and distribution of his forces. The part to be actively engaged must be placed so as to get

every advantage of position possible, and the reserve force must also receive proper attention and thought as to place and base of supplies.

Every bee-keeper occupies, in a certain measure, the position of commander of an army. The field-bees are his active forces; the nurse-bees and downy young ones are his reserve; the fields and forest his battle-ground which are to be robbed of their hoarded riches for the enhancement of the commander's interest. And no army ever proved more faithful, or adhered more closely to their chief's interest, than will this army of busy workers. But no commander's success depended on his arrangement and placing of his command more than does the bee-keeper's. Therein does he show his skill. If it were otherwise, any one could succeed in bee-keeping; for all there would be to it would be the possessing of the bee-force, and the bees would do the rest: whereas this force must be guided and directed, even as much as the army must be commanded, to be successful. Weak battalions must be strengthened; strong battalions must support and help the weak. The above is only a prelude, to borrow a musical term, to the real object of this article; but the fancying myself a commander-in-chief pleased me and may others; perhaps it tickles my bump of self-esteem.

WEAK BATTALIONS.

What to do with weak colonies in the spring is one of the ever-recurring problems that come before the bee-keeper. The old maxim, "Keep all colonies strong," may be true enough as a general principle, but it will hardly apply here; and trying to make it apply has ruined what might have been a fair colony for profit at the close of the honey season; for to do this (make them strong) only two ways present themselves—to build them up with brood from those already strong, or put several together, and thus make one strong at the expense of several. In following the first method, you have not increased your bees any, only put your forces in a new position, thereby weakening the battalion that was none too strong, and putting the force subtracted where its only use is to support the poverty of its adopted home, without any serious results as to alleviating it.

If the other course is followed, you have destroyed at least half of your recruiting force by destroying the queens of those united with the others; and, furthermore, the chances are largely in favor of your united colony being no stronger at the end of two weeks than any one of them was at the beginning. It is well to bear in mind that all the bees brought out in the spring are old, and their term of usefulness is limited to days or weeks at the furthest, and no amount of uniting will save them from this fatality. One hundred bees in one hive will die just as soon when their time has come, as they would in ten hives.

THE CAUSE OF WEAKNESS.

This is first to be inquired into. Usually the queen is at the bottom of the trouble, but not always. She may be a drone-layer by reason of age or having passed her time of usefulness, or by reason of being raised too late in the fall before to meet the drones. In either case the only course is for the apiarist to destroy her and give her bees to some other colony. Other queens may be all right, but able to lay only a small quantity of eggs in a day. It is of this kind that you will probably find most, and here the former treatment would be suicidal. Simply let them remain; tuck them up close with enamel cloth and quilt, or division-board; see that they have plenty of honey, and do not disturb them until about ten days before clover-bloom, except to see that the queen has room to lay at all times. At this time, if you have observed the proper conditions as to food and warmth, each colony will have increased perhaps from three to five frames. These, if left to themselves, would, of course, not amount to much as honey-colonies in their present shape, for it would take about all the bee-force to maintain the heat of the hive, etc.; but I find that, by uniting the working force, we can get, even from this unpromising material, some surplus. First, look your colonies over and ascertain just how many frames of brood there are in each, and mark them in some conspicuous place with that number, selecting the best for your honey-colonies; then from the others take frames of sealed brood with adhering bees, and fill these honey colonies full of brood, putting the removed frames into the colonies from which the brood was taken. Just how many to leave in the robbed colonies will depend much on the weather at the time; if warm and fine, all but the eggs and unsealed brood may be taken, for there will be returning bees enough to care for them. Of course, it hardly seems necessary to say, "Do not carry away the queen, and mix the bees well in their new home." This is easily done by mixing the frames from different hives, not putting two from the same hive side by side. With this plan I have never found it necessary to cage the queen. By this plan, you have not increased your bees by one; but you have put them where they can do your work better, and their own housework will not suffer materially.

You have now quite a number of fighting battalions ready for the coming onslaught of forest, field, and plain; whereas, by building up the weak from the strong, only weak forces would have been at your command, and the spoils would have been few and scanty.

But the war is not over yet. You have these few weak colonies yet to care for. What shall we do with them? They will have increased some by the time swarming commences, and are worth looking after.

SWARMS.

These will probably come from your strong

colonies very soon after honey commences to come in, and then is the time to show your generalship again. Remember that increase of number of hives containing bees is not necessarily an increase of bees. Our maxim now should be: Allow no increase until all hives now occupied are *full*. Having this always in mind, one can readily see how to arrange those weak forces. Allow the swarms to issue in the good old way, which, in my mind, has no equal; hive them on their old stand, which is a small job if you have the queen clipped, as you should. Give them a new hive with two frames of unsealed brood, taken from the old hive, in it, and fill out with empty combs, foundation, or empty frames, as experience or conditions dictate as best; put a surplus arrangement on top, and your honey-gathering goes merrily on at the old stand in the old way, but with added vim. Take your eight frames of brood, which you have left from the old colony, and put them in two or more of your weak colonies, and by the time basswood blooms they are weak no more. If you think the queen is poor, and would rather replace her, all you have to do is to decapitate her majesty and put a frame containing a queen-cell in the hive, and you soon have a new queen to reign over your new colony.

After all colonies are made strong in this way, and if swarming continues, you can get all the increase desired by making nuclei of the brood instead of putting it in other colonies. This plan has been the one I have followed for several years, and can yet see no reason for change.

Ithaca, Wis.

[Here is another article on the same subject.—Ed.]

MANUM IN THE APIARY.

SPRING MANAGEMENT; JONES TAKES ANOTHER LESSON.

By A. E. Manum.

"Manum, do you run a hot-bed with all the rest?"

"No, Jones; this is what gardeners call a cold-frame. For the want of a better place, such as a hot-bed or a greenhouse, I start my plants in the house, and then transplant them into these little three-inch pots, and on sods, and set these in the cold frame."

"Do you expect those cucumber and melon plants to thrive when put out in the open garden?"

Oh! yes, if they are not put out too early, by growing them in pots and on sod they can be transplanted without disturbing the roots in the least; in fact, they never seem to stop growing when put out if kept watered. Now, Jones, we will see how the bees are prospering. We will make short work of it to-day, as the middle of April is pretty early to expose the brood-nest very long to the cool air. We can only look after their store of honey, and see how they are

prospering in the way of brood-rearing. There, this colony has some brood in four combs, equal to two full combs. Pretty good for this time of year!"

"Now, Manum, I get a little confused in calculating the amount of brood or honey in your hive when reckoned by frames. You see, I use the Langstroth size, while you use the Bristol frame, which is much smaller than mine. Now, what portion of my combs would be occupied by the amount of brood contained in two of your combs?"

"That depends somewhat upon the comb surface in the L. frame, since it varies somewhat, owing to the varying thicknesses of top and side bars. There is in one of my frames 114 inches of comb surface, while an L. frame has about 151 inches, making 37 inches more in the L. frame than in mine. The comb surface in 9 L. frames just about equals that in 12 of my frames, so that it takes nearly $2\frac{2}{3}$ of my frames to equal 2 of yours. Here is a colony that was strong in bees when we opened them last week, and just see how they have dwindled down. Oh! I see—the queen is a cripple. She can but just drag about; and see! there is a dent on her back. She has been caught in a tight place somewhere, to have met with such an accident. Well, I might as well break up this colony at once. What few bees there are I will unite with that light colony over on the other row. The queen I will drop down here and put my big foot on her. That makes one more colony to be numbered among the dead."

"Why couldn't you use these bees for a nucleus for queen-rearing, and save the breaking-up of a colony later on, as you spoke of this morning?"

"It is altogether too early in the season for that, Jones. I never think of forming nuclei before the 15th of May, and then only a few. I form the greater part of them after the first of June; because, of late years, the most of my orders for queens are for yearlings, which I commence to ship about the first week in June; and, furthermore, such bees as these would be nearly worthless for queen-rearing, as there are so very few young bees among them. You see they are all old settlers, and would be short-lived at best. In fact, I do not suppose they are even worth the bother of uniting with other bees; but I will unite them just for the sake of showing you how I do it. Now, there are just about bees enough here to cover three of my combs, hence we will remove all but three combs, and close the hive for thirty minutes or so, and in the mean time we will transfer two good colonies from my hives into these little experimental non-swarmer hives; and as the season advances we will watch their progress. Now we will unite those bees. First, I will remove three combs from the light colony, from near the cluster, leaving one comb of honey close to the cluster, and now I will place the three

combs, with the queenless bees, next to this honey, and the job is done. You will observe that this comb of honey between the two lots of bees keeps them separated until they become better acquainted, or all of the same scent, and then they will unite of their own accord."

"Manum, I see on this next hive a blue stick tacked on the front gable end. What does that indicate?"

"That indicates that the queen in that hive is one selected last fall for a breeding-queen; that is the way I mark them, so that, when I am in a hurry, I can go right to one of these hives without having to refer to my book. We will open up this hive and see what is in it.

"Goodness! this is a strong colony; see the brood! Why, they will swarm in two weeks, I should judge by the strength of the colony.

"Yes, this is a good queen; just see how large and plump she is, and how large and strong appearing her bees are. I am tempted to *steal* a comb of hatching brood from this colony and give it to that light colony, to which we gave the queenless bees. It would help them wonderfully—much more than those old bees will. Yes, I will do it, although it is too early for such work; but this colony can well spare the brood. The only fear I have is, that the light colony may not be able to care for the extra brood. But I will heat a brick and put it into the unoccupied half of the hive every night and morning, for a few days, and I think there will be no loss of brood."

A. E. MANUM.

Bristol, Vt.

Our Symposium.

THE LARGE OR THE SMALL HIVE.

LARGEST YIELDS FOUR TIMES OUT OF FIVE FROM THE LARGE HIVE; NOT A QUESTION OF LOCALITY; A STRONG ARTICLE.

By J. A. Nash.

I have read with much interest many of the articles on the hive question, but did not intend to say any thing myself, until the editor remarked that the subject was *still* open; then I concluded to say a few words.

In a number of the articles on this subject, the writers speak of a large hive for one locality, and a smaller one for another. Mr. Editor, is there so *very* much in this? I have been interested in bees since I was a boy; have kept them for the money there was in them, as well as the keen enjoyment I derived from a study of their habits; and in the years that are gone, when the flowers of our Iowa prairies and groves secreted honey, I believe I secured my share of it. Now, if the experience of over a quarter of a century has taught me one thing more thoroughly than another, it is this: While you can keep a small colony in a large hive, it is another matter altogether to have a large booming colony in a small one; and that a small

hive can be depended on to take the swarming fever altogether too often for the good of its owner's purse, if he wants a large yield of surplus honey. Were I depending on the sale of bees for an income, I would take the smaller hive every time. My largest yields of honey have come, four times out of five, from the large hives.

For many years I have produced extracted honey; but before the extractor came into general use I made shallow frames, about five or six inches deep, for supers on the Langstroth hive. These frames had a pair of vertical center-pieces nailed in. I would remove the filled frames, and saw them apart in the center, thus making a very salable package. Sawing off the top and bottom bar in the middle, leaving the center-piece as an end, I crated about 25 or 30 lbs. in a neatly dressed basswood box, and sold at a good figure, wholesale, to the merchants in the city, besides supplying many private families. But I digress. Much of this honey was stored in L. hives of 12 and 14 frames each. Our locality was good, and the yield from the large hives noticeably greater than that of some 25 or 30 hives, ten-frame L. size, but only six inches in depth.

On the road to one of my out-apiaries, years ago lived a bee-keeper of the old school. His apiary was composed entirely of basswood "gums," worked out thin and raised up from the bottom-board by flat stones about one inch thick. The capacity of these "gums" was, as their owner assured me, "purty nigh a half salt-barrel." To obtain surplus, he bored holes in the cover, and placed another large hollow log over the first, and in this way he often obtained large quantities of honey. I purchased ten first swarms of him one year, paying him \$60.00 cash for them (remember this was years ago, when bees were very high). They were very large fine swarms; were hived on empty frames (twelve-frame L. hive), yet I sold from these ten colonies over 400 lbs. of surplus honey at 24 cents per lb.

Some 50 or 60 rods down the stream lived another bee-keeper, a widow. Her bees were in box hives, as nearly as I can remember, 10x12 inches, and 13 inches deep. I am very certain in regard to the depth, as she assured me that 13 was considered an unlucky number; but she did not believe in luck at all—at least, *ill* luck. I left here 20 hives. Mrs. W. filled them with the swarms that issued in great plenty from her small hives. I paid this bee-lady \$80.00 for the 20 swarms, she readily admitting that Mr. K.'s swarms were worth more than hers. In the fall I found two or three of these swarms too light and weak to winter, and one colony had stored a little surplus.

Now, the net results of my bee operations have been something like the above with variations; and as I look back over the past, I find that with me the large hive, the large colony, and

the large surplus, have traveled hand in hand irrespective of good or bad location. Two good men can do twice as much work in a day as one; two good teams will accomplish twice as much plowing in a day as one; and a swarm that, when shaken from the tree, will weigh from 18 to 28 lbs. will just as certainly gather more honey than one that tips the scale at only half that amount.

Some ten years ago I concluded I was using hives that were too large, and, moving to a new location (the present one), I made all my new hives to take ten frames 12x12. Of these I now have about 100, bee-spaced, loose bottom-board, flat cleated cover, and a movable side. On these hives I tiered up half-depth bodies, filled with empty honey-combs. I soon found, however, that my ten frames would not do for a twelve or fourteen frame queen, so nearly all my colonies have an extracting-case of ten half-depth combs *under* the brood-chamber proper, which I seldom disturb, unless it is to take it, with adhering bees, to build up some weak colony, in which case another empty super takes its place.

For the edification of those who think that eight L. frames are plenty for a queen to occupy, I will say that I have often found this brood-chamber of ten large and ten small frames well filled with brood in all stages of development, and the queen looking for room to lay.

I have no red-clover queens, and, as yet, no five-banders or golden honey queens—just plain, every-day leather-colored Italians and a few hybrids.

I believe some one said that this kind of high-pressure brood-rearing is a trifle wearing on the queen, and causes her to come to an untimely end. Such may be the case; but when I find one that can't fill more than six or eight frames, I step on her and put a better one in her place.

I don't believe my bees are the best in the world; but I do believe in breeding from the largest and most prolific, and the best honey-gatherers. I keep a record of each hive; and when I find one that has had as good a chance as the rest, and doesn't make as much honey as it should, that colony gets a new queen. Of course, this is written mostly from an extracted-honey point; but were I producing comb honey, I should want a large colony.

I must agree with Mr. Boardman (our hives are much alike) in regard to the square hive for practical utility—page 250—for brood-rearing and wintering.

Monroe, Iowa.

[Say, friend Nash, did you ever try two eight-frames, one on top of the other? You have given some strong points in favor of large hives; now let some other fellow who thinks differently produce counter-evidence if he can; but, hold! here is another one right in the same strain from Mr. Doane.—Ed.]

SIXTEEN-FRAME HIVES A SUCCESS.

I commenced using 16-frame hives seven years ago this season. I made only one, as I was afraid. This colony is alive and in good shape yet. Four of the years it has given from 140 to 180 lbs. of comb honey. Two years they swarmed, when the parent stock gave about 60 lbs. one season, and 90 the other. One year they superseded the old queen, but didn't swarm. After trying this size of hive two years, I made some twelve or fifteen of them; and, as they gave like good results, I continued to add to the number of large ones in the yard, until I have now some thirty of them. I have the eight and ten frame, and have used them for twenty years; but I expect to put all in large hives this spring, as I get an average of nearly, if not quite, double as much from the large hives as from the small ones. Last season my best, in eight-frame hive, gave only about 60 lbs., while my best in the large hive gave 220 1¼ sections well filled, and 28 sections, same size, of No. 2 honey. If it would interest you to know more about these, and how I manage them, I will tell you.

I have 60-lb. cans ready to ship the honey in. If you should not want this honey, I will send you comb honey in its season. I have got raspberry honey off the latter part of June for several seasons.

I have just received one of your Cowan two-frame extractors from W. D. Soper.

Breckenridge, Mich., Apr. 6. N. E. DOANE.

[Although Mr. D. does not say so in just so many words, I assume that the 16 frames are all in one hive-body. The facts he gives are interesting. Can we not have more of them? Of course, we should be glad to hear from Mr. Doane further. Here is another:]

IN FAVOR OF THE TEN-FRAME HIVE.

I have 300 colonies on summer stands, some 200 with flat covers, and 100 with gable covers, all two-story ten-frame Simplicity hives. I have been very much interested in the eight vs. ten frame hive discussion. I have never used the eight-frame hive; have used the American pattern and discarded it. I think the ten-frame has advantages in this locality over the smaller hives. By their use we can build up to enormous colonies, and at the same time keep down swarming to a great extent. The natural swarms in my yards last season were 12 per cent. I use a two-story brood-nest, and often have sixteen frames of brood in the same. I run exclusively for extracted honey, so I have a less number of hives to visit for the same number of frames of honey, which is a great saving in labor. I would rather increase than diminish the size, by tiering up to three stories. I have used three stories to some extent, and find they give perfect satisfaction in my locality. I find that, by using eight frames in the extracting-supers, I am bothered less with brood in them. The cells being so deep, the

queen doesn't use them for brood unless they are cut down by the bees. My crop for the last season was ten tons of extracted honey from 270 colonies, spring count. Z. S. WEAVER.

Courtney, Texas, Feb. 14.

[And here is still another:]

You can put me down as being in favor of the large hive. I have about eight in ten-frame hives, and they have, strange to say, done all the swarming, and are the strongest colonies that I have. During my three years' experience with bees I have noticed that the ten-frame hives were ready for the extractor before any other, and after this season I expect to use no other.

Columbia, Miss.

T. S. FORD.

THE EIGHT-FRAME LARGE ENOUGH.

In regard to the size of hives, I will say the eight-frame Dovetailed hive is large enough for me. In the past five years I have transferred perhaps a hundred colonies from larger as well as smaller hives than the dovetailed, and put them into the latter hive, and all appear to be well satisfied with the change. I find it large enough for an average queen; and when we get at the average, we are then as far as we should go.

JAS. PRATT.

Cumminsville, Neb., March 12.

[Friend Pratt has hardly a fair show. Who will help him out?—ED.]

WINTERING.

WHY BEES CAN STAND LOWER TEMPERATURES OUTDOORS THAN IN THE CELLAR.

By Dr. C. C. Miller.

Dr. Miller:—Having been a reader of GLEANINGS for four years, and studied the A B C of Bee Culture for nearly the same length of time, I have a question to ask, something like this: I have several colonies of bees in single-walled Dovetailed hives, and they have been wintered outdoors for three years in Southern Iowa. My plan was to move them up side by side, and about four inches apart, then pack with chaff in between, also put on a Hill device and a chaff cushion on top of that. Now comes the most important part of my question. Bees, even when packed in this shape, will freeze some. Now, why will it hurt if they freeze some in the cellar, providing the bottoms are left on the hives? For the life of me I can not see where the difference comes in. Of course, I presume there is some difference; and if so, please show us where it is.

I am thinking some of erecting a sod house for my bees next winter. The walls will be two feet thick, with hay for a roof. Now, please tell us what you would think of my sod house. Supposing they get a little cool in it, what worse will they be than if they got a little cool or cold outside? This winter I have moved my bees out to Northern Nebraska, and have

packed them as before stated, except they are packed in moss. We have moss that is three inches thick, and we cut out our cushions with the hay-knife to fit the upper stories; also to go in between the hives. Please say how you think moss will do as packing. I know the bees are well packed, but I also know they are in single-walled hives; and I know that, on the morning of Feb. 6th, the thermometer stood 10° below zero; and on the 7th, 23° below; and on the 8th, 20° below.

Now, friend Miller, I know this is quite lengthy, but I hope you will give it your attention, and oblige.

JAS. PRATT.

Bartlett, Wheeler Co., Neb.

[Dr. Miller replies:]

Friend Pratt:—I must confess that your question is a little too much for me. I've asked that question myself more than once, and never got an answer entirely satisfactory. When bees are in the cellar, if the thermometer goes down to 38° we are told it has reached the danger-point. But if they are outdoors, and the thermometer goes down to 15 or 20, or even if it occasionally reaches zero, we think it's all right. It is so generally conceded that there is a big difference whether the bees are out or in, that you wisely refrain from disputing it, and I suppose it must be true; but then comes your troublesome question, "Why?" I may as well say at once "I don't know," and be done with it; but really it's such an important matter that it seems we ought to be able to get some light on it. For if we knew *why* bees can't stand the cold in the cellar that they can outdoors, then we might possibly be able to supply the conditions in the cellar that will enable us to winter the same as outdoors.

In the hope, then, that, by a discussion of the matter, some light may be drawn out from some quarter, "I'll mention some of the things that have at one time or another been thought to have a bearing. Perhaps the majority who have any opinion at all on the subject would say something like this: "The trouble with the cellar is the long confinement. Bees outdoors have an occasional fly, while at such times bees in the cellar must remain in the hives." It seems there ought to be some truth in that, for we know very well that in the spring a colony standing outdoors affected with diarrhea will often succumb if the spring is long and cold, giving the bees no chance whatever to fly; whereas, if a single warm day comes, giving them a good cleansing flight, they're then ready for another long pull.

If that's the right view, then, in few words, bees have a chance for flights outdoors that bees in the cellar don't have. How shall we meet this difficulty? It seems quite plain—carry out the bees for a flight every time those outdoors fly, and then carry them into the cellar again. Other things being equal, the cellared

bees ought to come out best in the spring if they are thus carried out, for they have a milder winter; and I think we all know that, the milder the winter, the better for the bees.

Just at this point, a friend at my elbow says, "Yes, that would be a lovely job, to carry the bees out and in every day they can fly!"

"Never mind the lovely job," I said; "if we can make them winter perfectly in that way it might pay."

"But they wouldn't winter well that way. It would stir them up every time they had a fly, making them uneasy, and they wouldn't be contented to stay in after they had been out. I don't believe it would be a good way at all."

And she spoke with such earnestness that I think she had some fear lest I should contemplate carrying out bees every mild day, as part of the regular program.

"But," I said, "the bees outdoors fly without disastrous consequences, and we don't try to keep them in the hives for fear they become uneasy; why isn't it the same in one case as the other?"

"They're not shut up—they're not shut in—they can fly when they want to."

"Why, they're shut up just as much in one case as in the other. Indeed, if there's any difference it's in favor of the cellar bees; for, on the whole, they're the warmer, and the cellar bees can fly when they want to just as much as the others, if we carry them out every time it's warm enough."

Silence was the only reply to this for some time; and then, woman-like, she turned on me with the remark, "Well, if that's the best way, why don't you make a practice of carrying them out and in? I don't think it is a good way."

I think it is generally agreed that it is not a good plan to carry bees out of the cellar until they are ready to stay out, and I think the idea is correct; but I confess I'd like to know why. Who can tell?

If, then, it's true that, by letting them have the same flights that they would have outdoors, they still can not stand the same cold, we come back to the old question, "Why?" Is it an occasional warming-up that they get outdoors, not enough for a fly, but still warmer than in the cellar? G. W. Demaree advocates occasional raising of the temperature in the cellar, and the plan looks reasonable; but after trying it one winter, I have less faith in it. Possibly it may be all right in Kentucky.

The only thing I can think of as a possible explanation is the difference in the air. Mind you, I don't know about it, but I'm searching for a clew that seems to give a little promise. I know we are told that bees don't need air; that you can get plenty for their use through a stone wall, and all that sort of thing. I don't believe a word of it. I feel sure they need some air, and I believe they're better off to have plenty

of it; and the purer the better. Do you think the air of a cellar averages as pure as that outdoors? Do you think a person who lives in a cellar is as strong and healthy as one living outdoors, even supposing one had the same light as the other?

I believe it is a well-known fact, although not so universally known as it should be, that, in a room where the air is close and impure, the thermometer must stand higher to keep the human occupants warm than in a room with fresh pure air. Is it not reasonable to suppose it may be the same way with the bees?

I'll tell you one thing that I have already mentioned, and I have noticed it many times. Along toward spring there come warm spells when the air outdoors is as warm as or warmer than it is in the cellar. The bees become very uneasy and noisy. At night I open up doors and windows, letting in a flood of fresh air. The noise in the cellar increases threefold; but by morning all is quiet, and sometimes the full light may stream in on the hives through the forenoon without their stirring out. It isn't because they are cooled off, for the thermometer in the cellar has gone up. Moreover, I have sometimes accomplished the same purpose by putting a fire in the cellar. You see, in the cold weather the heavy cold air from the outside forces its way in; but when the air in the cellar is as cold as or colder than outdoors, then ventilation stops, and the air becomes foul. The point is, that the bees are uncomfortable, and hence inclined to disease when the air in the cellar is more impure than usual.

Now, I don't know that the impure air is the whole reason why bees in the cellar must be kept warmer than outdoors; but I suspect it has much to do with it, and I'm ready for any light that comes.

The moss you speak of is, I suppose, sphagnum or nurseryman's moss, and is highly esteemed in Germany. I think you will like it.

Marengo, Ill.

WAX.

A DESCRIPTION OF THE PRINCIPAL KINDS, AND THE USES TO WHICH THEY ARE APPLIED; SUBSTITUTES FOR BEESWAX.

By Karl Rudolph Matthey.

[In presenting the following papers on the subject of wax, we believe we are giving our readers much of value and interest. The author, Mr. Matthey, who is now one of the staff of workers here at the Home of the Honey-bees, has written considerable for our columns during the last year or two. He has paid particular attention to the subject of wax, and appears to be unusually well informed in regard to it. He has quite a nice little library devoted to that subject, all in German, as that is the only language he uses here, and the one in which he writes his articles. The interest belonging to the subject will increase as the articles appear.—ED.]

Honey and wax—two natural products which, in their pure state, are obtainable from bees only—have, from the earliest dawn of human history, played a *role* of the highest importance in human economy. The Bible mentions milk and honey as typical of all earthly blessings. The Greeks and Romans flavored their wine with honey; the ancient Germans prepared their intoxicating mead from it; and in a time when men had neither sugar nor syrup, honey served exclusively as a sweet for their food and drinks.

Wax, on the other hand, was the only illuminating material for God's house and for palaces; and it found special application for pharmaceutical purposes; and for thousands of years the product of the bee had no competitor.

But now this is all different. A whole list of fats, partly from the animal kingdom, partly from the vegetable kingdom, and some (at least apparently) coming from the mineral kingdom, are, with the help of modern science, chemistry, and other adequate agencies, so manipulated as to resemble pure beeswax to such an extent as to be very deceptive. Yea, so well is this work done, that, for certain practical purposes, such as illumination, etc., the compound may be considered as perfect.

As these species of artificial wax, such as ceresin, paraffine, ozokerite, and all such mentionable products of human manufacture, can be, for the most part, furnished at an insignificant price, it follows, as a natural consequence, that pure beeswax must become greatly depressed in price to meet the price of the others. We get now hardly as much money for two pounds of beeswax as we formerly did for one.

Wax was already known in the earliest antiquity. The Greeks and Phenicians were acquainted with its use, and knew how to bleach it. Pliny called white wax "*cera Punica*" (Phenician wax); he describes the framework upon which the sheets were laid to bleach; and he even describes the cloths with which the frames were protected and the wax covered during unfavorable weather.

In the time of Dioscoroides, sheeted wax was known. The bottom of a pot was first dipped in cold water and then in melted wax; or a globe, likewise moistened, was dipped in wax. The sheets, or films, when removed, were strung on threads so they would not touch each other; and after copious washings they were set in the sun. At that time, illuminating material prepared from pure beeswax brought a high price. It was used in divine worship, and its consumption increased in proportion to the spread of Christianity. Even to-day the Mohammedans use wax tapers in their mosques. I saw such in the Aya Sophia, in Constantinople, at the right and left of the *mimrab* (prayer-niche), each taper being about 19 inches thick and 13 feet long. A similar one was in the mosque of the Sultan Achmet.

In former years, wax-bleaching was carried on as an independent business; and its extension may be inferred from the fact that, at the end of the seventeenth century, there were fourteen wax-bleaching establishments in Hamburg. In fact, except oil and tallow, and the inevitable pine shavings, no illuminating material was known but wax; and this, only the rich could use. At that time, even princes who indulged in this luxury (according to the conception of those times) were held to be spend-thrifts. Besides for candles, wax had a further use in the manufacture of artificial flowers and fruits, which were used as room ornaments, for at that time the use of sealing-wax and other kinds, for that purpose, was not known.

Besides beeswax we are now familiar with a list of vegetable fats which more or less resemble it, known by the common name of vegetable or plant wax; in addition to which has been recently added mineral wax—ozokerite—which, when refined, is known as ceresin, which is used to a great extent in the adulteration of beeswax.

Wax is still used nowadays for illuminating-purposes in divine worship, not only by Christians but by Jews. But the Orthodox Greek Church makes the most conspicuous use of it. It serves, also, for a number of technical, medicinal, and artificial purposes; and in spite of the diminished production of wax candles, beeswax alone will not supply the need of wax, as the different kinds mentioned allow of a wide use of that substance.

Continued.

T SUPER VS. SECTION-HOLDER SURPLUS ARRANGEMENT.

WHY THE A. I. ROOT CO. RECOMMEND THE LATTER.

By Dr. C. C. Miller.

A question is asked me on p. 215 that I shall be glad to answer as well as I can. It is about T tins; but in introducing the question a statement is made, or at least implied, over which I have pondered—"So few, comparatively, use T tins now." Now see, Mr. Editor, whether I give an entirely fair paraphrase of what you meant to express. "There was a time when T tins were much used, but not now. Section-holders are better than T supers, and are now taking the place of the latter." I should really like to know just how much truth there is in that. Are T supers less used than formerly? Can you give us the names of practical honey-producers who have thrown aside T supers for section-holders?

You may say that you know section-holders are taking or have taken the place of T supers, because you now sell many section-holders and scarcely any T supers. If you should tell me that about different kinds of sections, I should at once see the weight of the argument, for it would tell me about the preferences of bee-

keepers in general; for bee-keepers who use sections are continually buying new ones. But those who use T supers do not need to buy new ones, and so their lack of buying doesn't prove they think any less of T supers than they did. I don't expect to buy another T super as long as I live; but my not buying them doesn't prove anything about my preference. Now, if you say to me, "We sell a great many section-holders to those who have used T supers and have cast them aside," I shall, in all fairness, have to admit that, for such persons, with their present knowledge, section-holders are preferable.

But who are the purchasers? As surplus-honey arrangements last a long time, a large portion of the purchasers will be beginners. The beginner looks to you for guidance; and you say, in very plain print, "We consider the section-holder arrangement for holding sections on the hive superior to any other." That settles it for him, and you take his purchase as a proof that section-holders are best. It doesn't prove anything of the kind: it only proves that *you* think so, and that the beginner has confidence in your judgment. Other purchasers are those who are still increasing their requirements and need more supers than they now have. Such a one will say, "I want the best that's to be had. Mr. Root says it's the section-holder. He's so thoroughly reliable that I'll trust to him and get section-holders." Very likely he'll make an improvement, for he may be using something not nearly so good as section-holders; but if he has been using the T super, and finds on trial that he doesn't like the section-holder so well, it is not at all certain he will promptly make it known; and in any case, the fact still remains that he has increased the sale of section-holders without preferring them.

There are those—I have your own word for it—"there are those who have used the T super so long, and to the exclusion of all others, that they are not easily persuaded to use any thing else." Now, why? I suppose you include me in the number, and I suppose that I adopted the T super for the same reason others did—at least some others—because it was better than what I had been using. Would not the same reason make me change from T supers to section-holders that made me change from wide frames to T supers? I think I made a pretty fair trial of the two side by side, and, like the others who are stubbornly holding on to the T super, I did so because I believed it best.

Please remember this: The friends of the T super are not likely to say any thing about your preference. Take my own case. Personally, what difference does it make to me what you think about it? I have all the T supers I need; and if others buy section-holders, it's nothing to me. If you should try to rule out the kind of sections we prefer, then a howl would be raised because we should be stopped from getting what we wanted. But booming section-holders

doesn't touch in the same way, so nothing is said. But try to take away T supers, and then you'll hear something.

You will probably say I'm prejudiced. Why should I be? I've changed before; and unless I should die young I expect to change again. I am on the lookout for something better than the T super, and then I'll change to that. But it will hardly be the section-holder, for I have tried that and don't know of a single feature it has better than the T super. Can you name one? Now, instead of its being all prejudice that makes some stubbornly hold on to the T super, is it not possible there is some prejudice on *your* part? While giving you credit for none but the best of motives, I sincerely believe you are misleading those who look to you for guidance, and using your powerful influence in favor of an inferior article.

And now that I've made a good deal longer introduction than you did, I'll answer your question. Let us look at the points in the T tin proposed on page 215. Friend Anthony says,

 "The points 2, 2 wouldn't form cutting edges for hands and fingers, and would never become bent out of shape as much as the old kind do." I've no trouble with their bending out of shape with fair usage, and the duller edge would be had at the expense of nearly 50 per cent more tin; and, worse still, it would perceptibly raise the sections, making a larger space between top-bars and sections, and the bees would do a worse job of propolizing on this rounded edge than on the sharp edge of single thickness.

He thinks it would be a good thing to avoid "the rounding at the point 1" and have the sharp edge of the tin there. Well, my first T tins were all made that way, and I am still using them by the hundred. An objection to them is, that the sharp point 1 catches on the sections as you put them in the super, especially the last sections. There is much less trouble about the section catching on the rounded edge.

Now to come directly to your question, "Is a thickness of $\frac{1}{32}$ any worse than $\frac{1}{64}$?" Not a bit. It's just as easy, and a little easier, to close the larger space, for a thin piece hasn't as much stiffness to allow its being wedged in. You say, "If we could reduce it to nothing it would be desirable." No, it wouldn't, begging your pardon. Try once filling sections in a super where there is no play; and if you've quit swearing, there may be danger of a relapse. I want full $\frac{3}{8}$ of an inch play, then the three little top separators $\frac{1}{4}$ inch wide, and a shade less than $\frac{3}{8}$ thick, can be forced in and make a snug fit that would be utterly impossible with no play whatever. Whoever tries the two kinds of T tins side by side will, I think, prefer them as the Roots now make them.

Marengo, Ill.

[Your paraphrase of the quotation from my footnote does not quite give it as I would have said it if I had been enlarging upon it. T supers formerly had the lead; but they were not very well adapted to the Dovetailed hive, without making supers of different lengths from the regular hive-body. As the single-tier wide frame was very popular, and is now, and probably always will be, and as it seemed to have all the advantages of the T-super arrangement, and some peculiar to itself, we adopted it, but left off the top-bar. This omission, we find, had been begun by others before us. We give customers the option of the two kinds of super; but if they do not know what they want, we recommend the section-holder arrangement. We boomed the T-super arrangement in our 1895 catalog harder than ever, putting in a nice wood cut. But our packers hardly know what it is.

You ask me to give the names of those who have thrown aside T supers for section-holders. This I can not do. Why? I can best answer by making a quotation from your article above, wherein you say, "I do not expect to buy another T super as long as I live." The reason is, you have enough for your requirements, and you could not afford to throw them away for something perhaps slightly better. Now, then, if there are hundreds of other T-super men in the same fix, it is not likely they will discard their arrangement for the section-holder device; but we have had in times past a good many letters stating that they preferred the section-holders to the old T supers, but could not change for the reasons already given. I could not give you the names, because I was not then interested, and did not preserve them. The fact is, doctor, you have become accustomed to the T super (and it certainly is one of the very best arrangements), and your habits of working fit it better than any thing else. I have said before, there is a good deal in getting used to a thing. For instance, I know of some women who would not change their old cook-stoves, true and tried, for all the new-fangled stoves in the market. They have become accustomed to them, and know just how far they can go without burning their bread. They have become used to the swing of the doors, the position of the reservoir, the handling of the griddles, and yet nine judges out of ten would say their old stoves were very much inferior to the new ones. There, doctor, I do not mean to say you are an old fogey, and have become wedded to your old arrangement; but honestly now, doesn't the stove illustration *partly* fit your situation?—Ed.]

MORE QUEENS SAFELY TO AUSTRALIA.

I beg to announce the safe arrival of the two queens by September mail. I should have written you before, but I have been very busy. All the bees except the queen were dead in one cage; queen and all the bees alive in the other. Candy was in a good state of preservation. Bees commenced comb-building in the one all were alive in. My friend Edmunds informs me to-day that two out of three queens forwarded to him arrived all safe on the 16th of this month, so that you are much more successful this year than last, in so far as this district is concerned. I find your queens and progeny produce splendid honey-gatherers, besides being very gentle and prolific — all the advantages required by any bee-keeper. Your queens should command ready sale. It seems all that is required is safe mailing to Australia, when no doubt you would obtain many orders from Australian bee-keepers.

JNO. GARDNER.

Hurstville, Sydney, N. S. W., Oct. 27.

RAMBLE 131.

IN LAKE COUNTY.

By Rambler.



WHEN we rounded over the hill that looks down upon the little straggling town of Lower Lake we could see no signs, even, of a lake far or near. When we were putting our camp in order, an inebriated Dutchman came shambling along, and I asked him how far it was to the lake. He bland-

ly replied that it was 12 miles.

"There, Wilder," said I, "I told you there was no lake near us. How many rivers, creeks, and lakes we have crossed that have had no water in them!"

When we had our camp all set, and horses picketed out, we discovered we were in the next yard to a winery. That accounted for the drunkenness of the Dutchman. The poor fellow lost his hat and his bundle, and lay beside the fence as stiff as a poker for several hours. This was another object-lesson showing the beauties of wine-drinking.

Our next socially disposed visitor was an old resident of Lake Co., and in age he was an octogenarian, his silvery locks falling over his shoulders; his bent form and staff reminded one of an ancient prophet. He informed us that only an arm of the lake projected into that portion of the county, and it was only a mile and a half away. Our venerable visitor being an old resident, and having filled various offices of trust, he, in true California style, extolled the many good features of Lake Co. He said but little about its being the Switzerland of America; but he said, in a half-serious way in relation to the healthfulness of the country, that no one ever died in Lake Co. If they wished to shuffle off the mortal coil they would have to go over into Napa or Mendocino Counties. He gave us the average death-rate, and it was only 1 in 114, and this was not a very good day for death-rates either. He was thoroughly posted otherwise in relation to the statistics of the county, and informed us that there was plenty of room for settlement, as only a tenth of the land was occupied. The hills and mountains produce the best of fruits, while the valleys were adapted to grain and stock raising.

There were but few signs of apicultural pursuits, and the country so far had the appearance of scant honey-bee pasturage. We had observed, however, several familiar eastern honey-plants. Here was a patch of heartsease; then a sprinkling of sweet clover; here a fine

field of buckwheat, and mulleins. Their tall stalks and yellow blossoms transferred our thoughts in an instant to the old back pasture-lot in Eastern New York. Mr. Wilder inquired of our neighbor the fruit-rancher and winery-owner if there were any bee-keepers about.

"Yes," said he, "there's one just out at the other end of the town—Mr. Shires."

I resolved to spend at least a portion of the evening with him, and made tracks for his residence. I broke in upon him just as he was finishing his supper. Of course, having supplied the wants of the inner man, he was in a good humor, as all good men are upon such occasions. I found him a progressive bee-keeper, well acquainted with the reputation of A. I. Gleanings and the Rambler, and his greeting was cordial. Allow me to introduce Mr. Z. P. Shires. Mr. S. is not a very tall man, but he has much steam-engine about him. He is a married man, and has a swarm of seven children—four boys and three girls; and although he has so many strings to hold him down to one location and a steady occupation, he is quite a Rambler. He was born in Tennessee, had lived in Florida, Alabama, Texas, Washington, and California. Even now in this glorious Switzerland of America he showed some signs of discontent, and thought of moving to Upper Lake; and if that did not suit him he would go back to Alabama.

Mr. Shires is a very enthusiastic bee-keeper. He had been in his present location only eight months; but in that time he had cut down 60 bee-trees, all of them within two miles of town, and many in town. From the 60 colonies thus obtained he had saved 54, and had them nicely at work in Langstroth hives of his own construction. I visited him Aug. 26th. Since February, say a little over six months, he had cut the trees, transferred the bees, and, in addition to building the most of their own brood-combs, they had made a good amount of honey in 1-lb. sections, and his sales of the same had amounted to \$96. The bee-trees would sometimes yield a wash-tub full of honey. One colony occupied a cavity 6 inches in diameter and 14 feet in length. His bees were then, Aug. 26, at work upon honey-dew on the oak.

Mr. Shires described a remarkable feature of the country in the fact that, at certain seasons, honey-dew comes in veritable showers. The dew is seen to drop from the sky—not only seen, but felt on the clothing, and it covers all manner of vegetation with a sticky substance. The bees work upon it with great energy, and the quality of the honey is good.

There were but few bees kept in the Lower Lake region, and the persons who owned them had a mortal dread of the moth-miller. Mr. S. thought if they knew a little more about bees they could easily manage the pest. Foul brood is unknown here, and we hope it will continue so to be.

Like all of California, the spring months gave an abundance of flowers; but in June there is a short time of scarcity which sometimes endangers the life of the colony unless closely watched and fed.

At Upper Lake much alfalfa is grown, and Mr. Shires had an idea of moving to that locality, where he thought a greater amount and better quality of honey could be produced; but there is no better evidence needed to show the abundant honey-flow of this locality than the number of bee-trees.

In the morning Mr. Shires came over to our camp with a nice basket of fruit and some samples of his comb honey; and, how opportune! We had ceased to say, "May the shadow of Pryal never grow less." for the honey he gave us was all gone; and now we changed our opinion, and thought that the Shires shadow ought never to grow less; and how can it, with a swarm of seven children?

The objection to making a business of bee-keeping in this locality is its distance from railroad transportation. Mr. S. found sale for his honey in the home markets. We felt much benefited by meeting Mr. S., and were better posted in relation to honey-production in Lake Co. At the close of our fraternizing we turned our faces in our respective directions; and soon Lower Lake was a memory of the past.

Lake Co. is noted for its numerous mineral springs and health resorts; and, as a native said, the country seemed to make a good share of its living off the tourist. We desired to do our share toward supporting the country, and resolved to take a turn among a few of these resorts.

At Seigler's Springs we found a fine hotel, many cottages, and tents; but owing to the hard times there were but few occupants. The sparkling waters reminded me much of the mineral waters of Saratoga, N. Y. We lunched at Seiglers, and then pushed on toward Adams Springs; a rough, stony, and steep road tried the mettle of our ponies, but we accomplished the journey without accident. I was pleased to note in many places by the wayside quite thrifty little fields of sweet clover. The bees were working upon it quite freely, and they were presumably from the surrounding trees, for there were no bee-keepers in the vicinity.

At Adams Springs the mountains closed in to a narrow gorge. Here we found hotel and stables, and numerous cottages. There was barely room for a road, and we nearly despaired of finding a camping-place. We did, however, find a little square spot large enough for our tent, and we decorated the side of the mountain with our wagon, blocked with stones, and our ponies hung, as it were, to the bushes.

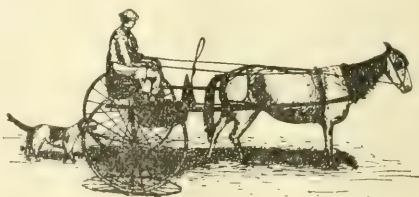
When we bade Mr. Pryal farewell in Oakland he partly promised to join us in Napa and enjoy with us for a season our travels and camp-life; but hearing no word from him we could only hope that he would follow on and overtake us.

We had been two weeks from Oakland, and his shadow had grown very dim, and here in this wooded country we had given up all hopes of his arrival.



MR. PRYAL'S UNSEASONABLE VISIT CREATES SOME ALARM IN CAMP.

We had retired, and were about to send up our somniferous orisons, when we heard a tramping of many feet up the narrow roadway—a lantern and a rough voice intimating that those hobo fellows had better get their tent out of that or they'd get pitched out. Our valiant Jack rushed out to the defense, and the parties halted. Mr. Wilder followed the dog to see what all the racket was about; and whom should he meet but our friend Pryal? It is needless to say that we gave this bee-keeper of Oakland a cordial greeting. He had been upon our trail for several days, and an extra push on the lines, and a late drive enabled him to overtake us. We gave him a soft corner of earth in our camp for his bed; here he rolled his blanket around him and soon forgot the toils of the day in sleep, with the rest of us.



MR. PRYAL AND HIS RIG SUSAN B. ANTHONY.

In the early morning we saw a sort of nondescript animal across the gulch, and Mr. Wilder was the first to exclaim, "Hello! Bro. Pryal, where in the name of the equine race did you get that hoss?"

"Eh? oh! That horse and cart is the property of the paper I represent—the *Pacific Rural Press*—best agricultural paper on the coast; only \$2.00 per year; circula—"

"But that boss," said I, "what's the pedigree? What's the name of the animal, anyway?"

"Well, gentlemen," said Mr. P., "she's a strong-minded animal, and her name is Susan B. Anthony. Her pedigree is from away back. She's the missing link between the donkey and the giraffe."

We all gathered around Susan B., and admired the various points of interest; and a snap shot will enable the more expert horseman to judge the ancient dame.



THE DIVISIBLE-BROOD-CHAMBER IDEA— WHOSE PROPERTY IS IT?

AN INTERESTING DISCUSSION ON PATENTS AND
PATENT DECISIONS.

As announced in our last issue, we give space to both Mr. Heddon and Mr. Danzenbaker to reply to statements on pages 267, 268. Neither one has seen galley-proofs of the articles in this number, and so both stand on an equal footing. I desire, above all things, to give both an equal and perfectly fair hearing. To let one reply to either one of the two articles in the present issue, and not the other, would be hardly fair; but as either one in a very large measure covers the points advanced by the other in this issue, it seems to me that further replies are unnecessary—at least in our columns; and I feel very sure that Mr. Heddon will grant space to Mr. Danzenbaker, if he so requests it, in his own paper, for the further discussion of the matter. As the latter's article came first we give it first. It is as follows:

Editor Gleanings:—I have neither time nor inclination for needless discussion, and I had hoped the world was wide enough for Mr. Heddon and the rest of us; but as he talks titles, laws, courts, and the sheriff, I desire the privilege of defending my position.

Mr. Heddon says: "My patent covers a divisible brood-chamber, used as and for the purposes specified in said patent." These purposes specified are the same as have been time and again written in bee-journals (by himself), in his circular and book; there is no mistaking it, and no getting around it. Dear reader, sometimes good men are honestly wrong. Two locomotives can not pass each other on a single track, and we can't both be right. The unsupported word of either of us can be weighed by all intelligent readers at their own estimate.

If friend Rambler, and others whom it may concern, will refer to the files of record in the U. S. Patent Office, showing the history of Mr. Heddon's case, they will find that he was not the first to invent and patent a multiple or divisible-brood-chamber hive, and has no legal or moral right to support his threats of prosecution, as he was informed at the time, when applying for his patent, in which he made a broad claim as follows: "7. In a bee-hive, a brood-chamber constructed of two or more horizontal, separable, and interchangeable sections." This clear-cut claim shows plainly his purpose; but it was rejected, with all of his ten claims except the 3d, by the Patent Office, as being *old and common rights*, and were dropped by his attorneys, and he

was restricted to *limited* and combined claims, as title-deeds are made subject to existing incumbrances. The Patent Office, by these limitations, expressly reserved what it had already granted to others. Mr. Heddon had to confine his claims to a construction of bottom-board, break-joint honey-board, and a case with thumbscrews through its sides, and cleats in the opposite corners, expressly limited, showing that the cases, cleats, frames, and screws, all old and common, were combined to effect his purpose, which defines and limits him to using these things as described, but does not prevent others from using any of them in other ways for the same purpose; and he is debarred from interfering with others using what the records of his own case show were denied him, and yielded absolutely by him at the time of his application. Numerous and recent decisions of the Supreme Court can be cited, showing the fallacy of Mr. Heddon's pretensions, as in the two cases below:

Sargent vs. Hall Safe and Lock Co.
114 U. S., Judge Blatchford.

"In patents, for combinations of mechanisms, limitations imposed by the inventor, especially such as were introduced into an application after it had been persistently rejected, must be strictly construed as *against* the inventor and *in favor* of the public, and looked upon as in the nature of disclaimers."

In case Keystone Bridge Co. vs. Phoenix Iron Co. 95 U. S., 279, S. C. said: "As patents are procured *ex parte*, the public is not bound by them; but the patentees are, and the latter can not show that their inventions are *broad* than the *terms* of their claims; or if broader, they must be held to have surrendered the surplus to the public."

What if Mr. Martin does say, "In making my frame close fitting, and also to the case, the combination is clearly an infringement upon the Heddon claim"? If Mr. Heddon had such claim (but the history of his case shows clearly and distinctly that it was denied him, *as old and a common right*), neither Mr. Heddon nor myself have been allowed to fence it off from the public, and we can not honestly claim it.

Mr. Heddon's objections to the sheet-metal lining and frame support have never been made by others who have seen my hive. This sheet metal does not warp, shrink, nor swell, and is covered over between the uprights and cases, insuring a uniform bee-space, with slack enough to press lightly against the uprights, and yielding enough to avoid jamming, if the frames swell. This end play is a decided advantage over the Heddon hive. They can not be glued to the case by the bees, and are easier to empty than a T super when full of either frames or sections. I first made and used it in place of the T supers, having never seen a Heddon hive until several months after I got my patent, although I had seen the drawings.

If Mr. Heddon's claim did cover the close fitting of the upright to the case, my hive would not interfere with that claim as they do not touch the case at all, but rest and bear against the metal support that hangs upon the case, and it can be used in other styles of hives. My claim is a broad one, without limitations, as I am at this date the first inventor of it. No set-screws are needed to secure the frames tight and solid in position, as they can now be carried bottom side up if need be, and they can be wedged up or set free with a plain gouge chisel, with half a turn of the wrist.

While apparently resembling the Heddon hive, mine does not use his style of frame or section. It is furnished with the exact style of top and bottom barred brood-frames and the prize sections, oblong in shape, used by Capt. J. E. Hetherington, of Cherry Valley, N. Y., which, after a careful test, I find the best in use, as 25 per cent. more of them will go on the same hive-space, and they sell for 5 to 10 per cent. more in market. Mr. Martin says such hives are well adapted to California, and he writes me that he likes my ten frames and sections better than the longer and shallower sections, irrespective of any claims as to infringements.

Mr. Heddon puts much stress on "the state of the art" to which an invention belongs at the time that invention was made must be considered in construing any claim for that invention." When he invokes this, let him *not forget* that nine of his ten claims were rejected *as old, and common rights*, and his patent is only a combination of cases, cleats, screws, frames, sections, *all old*. Where is the invention?

Functions! whatever that may be, it is too esthetic. You might as well try to patent a purpose or a principle which is as free as God's pure air and sunshine that he designs for all. Patents must define constructions or fixtures so clearly that one skilled in the art can make them. The venerable Langstroth may have been robbed of his just rights; but you, Mr. Heddon, are secure; it is impossible to rob you of what never belonged to you, either before or since the Patent Office rejected your claims, and you have accepted what you could get, like the rest of us.

There is no patent court of equity that was established in 1870, or any other time, different from other courts for patent-cases. Equity courts originated during the reign of Richard II., and come to us from our earliest history, your assertion to the contrary notwithstanding. If I am trespassing on your legal rights, I will gladly surrender; but as we can not think alike in this case, I will agree to abide by the decision of three reputable judges, each of us to choose one, they to select the third. Until you do this I declare publicly, as I well know, that my patent does not infringe any claim of yours, neither legally nor morally.

Mr. Heddon's reference to a bundle-carrier impales himself exactly. The other fellows had been there nearly a score of years ahead of him, which he knew then and now, as the records of the Patent Office in his own case clearly show that he mutely submitted at the time.

The limitations of Mr. Heddon's claims absolutely prevent him from interfering with others using what was denied him. He certainly can not claim more than his title calls for, any more than a squatter on a quarter-section could claim the State. As for management, his circulars show that he has revised it materially since he set out, and I prefer a very different one for myself.

Washington, D. C.

F. DANZENBAKER.

In order that the reader may more clearly understand just what Mr. Heddon's patent, dated Sept. 29, 1885, does or does not cover, we reproduce his five claims. They read:

1. In a bee-hive, a case consisting of a frame one of the sides of which is provided with thumb-screws extending through said side, and the opposite side of which is provided at the corners with narrow cleats facing said thumb-screws, substantially as and for the purpose set forth.

2. The combination of the bee-hive, the bottom stand having end pieces of less height than the side pieces, and the detachable bottom-board, the ends of which are provided with downwardly extending cleats resting upon the end pieces of the bottom stand, and the upper side and rear edges of which are provided with cleats adapted to support the lower case of the hive and afford admission-space for the bees, substantially as and for the purpose set forth.

3. In a honey-board for bee-hives, the combination, with a frame, of a number of slats secured to the bottom sides thereof at a bee-space distance apart, said frame being even with the bottoms of said slats and projecting a bee-space above them, substantially as and for the purpose set forth.

4. In a bee-hive of the described case, the combination, with the brood-chamber of a hive the tops of the frames of which are bee-space below the top edges of the hive and a case for surplus honey the bottoms of the frames of which are even with the bottoms of the case in which they are secured, said frames for surplus honey hanging parallel with and directly above the frames of the brood-chamber, of a honey-board consisting of slats secured to a frame, said frame being even with the bottoms of said slats and projecting a bee-space above them, substantially as and for the purpose set forth.

5. In a bee-hive, a brood-chamber consisting of a series of reversible and interchangeable cases, each of said cases being provided with thumb-screws extending through one side and with cleats at the corners of the other side and facing said thumb-screws, and of a number of reversible frames rigidly secured therein between said thumb-screws and cleats, and a stand and cover, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereunto fixed my signature in the presence of two witnesses.

[I have since obtained copies of patents No. 33,668, 196,060, 203,890, that are said by the attorney Mr. Danzenbaker to antedate Mr. Heddon's claims of the divisible-brood-chamber hive. We can scarcely afford to give room to the whole of the patents in question, but we make extracts touching upon the points at issue, so far as they concern the novelty of a horizontally divided brood-chamber. Patent 196,060, bearing date Oct. 8, 1877, by J. C. Train, makes the following claims:]

1. In a sectional bee-hive, the combination, with each of the sections thereof, of two or more fixed partitions, G, and a corresponding number of comb-supports, H, removably secured to the fixed partitions, substantially as described.

2. In a sectional bee-hive, the combination, with the lower section having grooves or mortises formed in its lower side edge, of a hinged bottom, substantially as set forth.

3. In a sectional bee-hive, the sections formed with two upper edges provided with tenons and two with rabbets, the inner edges e of which are cut away to afford bearings for the comb-supports G and H, while the lower edges are formed with two mortised edges and two rabbeted edges, in combination with such supports, substantially as set forth.

[Two paragraphs in the descriptive matter also read as follows:]

My invention relates to an improvement in bee-hives, the object being to provide a bee-hive of such construction that it may readily be adjusted in size to meet the wants of either large or small colonies of bees, and the several sections removably secured together in a water-tight manner, to exclude moisture and dampness from the interior of the hive; also, to provide space in the lower portion of the hive wherein the mother may collect and be removed therefrom without disturbing the bees.

It is evident that any number of sections may be employed, and a complete hive secured to the apiarian at all times, as, in case the honey is to be removed from the upper section only, the upper section may be removed entire, if desired, and, the cover or top J being replaced, as all the sections are made to accurately fit each other, a complete and water-tight hive is thus secured.

[Patent 36,668, dated Nov. 5, 1861, by H. R. Terry, contains these paragraphs in descriptive matter:]

My improvement consists in constructing the hive in horizontal sections, fitted to a suitable base and provided with a top, which forms a roof or cover, each section being separated from the others by series of slats, and connected together when in use by hooks or other equivalent fastenings, which admit of the ready detachment and removal of any one of them. The sections are three or four inches in depth, which permits the formation of combs, which are suspended from the upper series of slats. Each section is provided with a glass light F, covered with a slide, to admit of the inspection of the bees while at work. The sections being readily removable, any one of them may, when filled with new honey, be changed for an empty section thus taking the place of honey-boxes, and any number may be added to increase the capacity of the hive and adapt it to the size of the swarm. By this means the troublesome method of transferring the bees from a smaller to a larger hive, and vice versa, is entirely dispensed with and much time and labor saved.

[Patent 203,890, under date of May 21, 1878, shows a series of shallow cases containing regular frames over the brood-nest. The only claim under this patent is for a brood-chamber having concave or arched sides.

Patent No. 2592, dated April 29, 1842, shows a series of shallow chambers fastened together with bolts. They were simply shallow boxes, I judge, without brood-frames or any thing of the sort. There is no printed descriptive matter.

Patent No. 2929, dated Jan. 27, 1843, by J. Harris, contains a similar series of horizontally divided hive-sections, one piled upon another. These, like the one just preceding, contained no brood-frames, as a matter of course.

If any one is interested in following these up further, he can secure them by applying to the Commissioner of Patents, Washington, D. C., giving the number and dates as above given. It will be necessary to inclose 15 cts. for each patent called for. Stamps are not accepted.

Possibly our readers would like to have me enter an opinion (inasmuch as I have studied the patent question to some extent) as to whether the patents above cited would cover the divisible-brood-chamber idea specified in Mr. Heddon's patent. Such a statement as I should feel like making, I am sure, would please neither party; and I therefore prefer, for this and other reasons, to take no sides at all, as I take it that our readers are intelligent enough to decide the merits of the case after comparing the claims of Mr. Heddon's patent with those above cited, and reading his article.

As Mr. Heddon seems to be pretty well acquainted with the patents above given, the references that he makes to them, and his reply thereto, will probably cover what he desires to say concerning them in the article that now follows:]

REPLY TO ATTORNEY WILLIAMSON.

Infringement, or desire to infringe, are, either or both, prima-facie evidence of utility.—WALKER.

Bro. Root:—I have this day discovered Mr. Danzenbaker's attorney Williamson's attempted defense of his client's infringing hive (not patent), in your Trade Notes in April 1st GLEANINGS. While I regret that you should have printed such a communication, and also that two weeks should elapse before the sophistry could be shown up, I am pleased at your editorial remark that "both sides shall have a fair and impartial hearing."

Mr. Williamson is in the position of a paid attorney, and we all know what that means. It is no reflection upon the gentleman's character, to infer that he deems it a moral duty to carry the point desired by his client, right or wrong. Now, Mr. Williamson is discussing a subject before an audience of bee-keepers, not one in fifty of whom have sufficient knowledge of the same not to be misled. The members of this audience have been compelled to devote their time and intelligence to other matters; but these other matters have cultivated their inherent logic; consequently, it is more in this line than strictly in the line of patent law that I shall reply to the learned attorney. My own knowledge of patent law enables me to answer definitely and successfully every point raised by Mr. W.; and, in fact, my article preceding it, and the paragraphs from Walker's Patent Law, found in my 1890 circular, do most completely answer every point that he brings up; and these I commend to those of your readers who may understand patent law as well as or better than I do myself; but this article I shall confine principally to the illogical position of Mr. Danzenbaker and his attorney, believing it will be the better understood by our just and logical bee-keepers.

Allow me to call the reader's attention to the fact that Mr. Williamson makes no mention of patent law in equity. He speaks of my natural or "moral rights" as though he had seen a proof of my foregoing article. If Mr. Williamson is given room for another article, I request you to mail me proof at once, when I will have my Washington attorney append a reply to the same, which will unquestionably end all discussion on the legal aspect of my right to my earnings as an apicultural inventor. No one knows the state of the art so well as bee-keepers; such students of our literature as Prof. Cook, Hutchinson, Clark, Mason (and, without taking further space, twenty other prominent bee-keepers), would never have proclaimed "new, original, unexcelled, a revolution," etc., were I now the owner of nothing of any value. If such could be true, of what use is our patent office? and of what service are our patent-solicitors? Such would be an everlasting stain upon Mr. Williamson's profession. My attorneys will undoubtedly be as anxious to defend the title to my property, a document of their creation, as Mr. Williamson is anxious to tear it down, as a paid attorney in the interest of Mr. Danzenbaker. They will undoubtedly be able to defend the right, especially as "possession is nine points in law." The misleading arguments of Mr. Williamson, made for the purpose of dispossessing me of my earnings, by claiming that there is a flaw in my title to the same, are an exact repetition of the Langstroth history; of the attack upon the natural rights of the man we have subsequently sainted as the bee-keepers' greatest benefactor. If it were true, that any of the features of the Danzenbaker hive, which belong to Mr. D. (claimed in his patent), were of any value, Mr. Williamson's line of argument would as completely rob Mr. Danzenbaker, could it be successfully carried out in the practice of bee-keepers, as it is intended to rob me.

I call your readers' attention to mistakes, both in statements and deductions, in Mr. Williamson's article, as follows: He says the two hives are similar in construction, *only* in the matter of divisible brood-chambers and top covers. That is not true. If Mr. W. knew aught of the state of our art, he never would have mentioned "top covers," and, further, would have known that the close-fitting frames, at the same time closely fitting the case, prior with me, was the second essential feature of my hive, and imitated by Mr. Danzenbaker. He asks if my patent contains any claim which by a "fair construction" can be held to be infringed by the D. hive. "Fair construction!" Here Mr. W. admits that patent courts take into consideration the matter of "fairness" in construing the breadth of a patent-claim, and by this bee-keepers may know

just where our suit at law will come out at the end of a damage-suit against Mr. Danzenbaker's customers. Of course, Mr. Williamson must say something, because he is paid for so doing. The above shows clearly that Mr. W.'s statement, that claim five of my patent is the only one that touches upon the features of construction common to the two hives, is a gross error.

Next, Mr. W. quotes a claim of my original application which was rejected by the patent office, but fails to inform your readers that it is wholly covered by the last eight words of claim five, which read: "substantially as, and for the purposes set forth." In answer to another misleading statement of Mr. D.'s attorney, let me explain that I never claimed to be the prior inventor of every kind of brood-chamber which could be divided "for the purpose of increasing or diminishing its capacity." I so stated in the discussion which arose relative to the Ekes and Nadirs of France and Germany. My claim is on a divisible brood-chamber containing frames; one capable of the manipulations of modern apiculture, for the purposes set forth in my specifications. What are these purposes? Not only to "contract or enlarge" the brood-chamber, but to alternate its upper and lower parts, to produce certain results in the surplus sections of the hive. Now let me quote to you from the great authority, Walker:

"Novelty of a thing is not negated by any other thing fundamentally incapable of the functions of the first."

"Novelty and patentability are not negated by the fact that every part of the thing is old."

"Novelty of any thing is not negated by another thing which was not designed or used to perform the functions of the first."

The above is a complete answer to Mr. W.'s misleading quibble regarding the revision of my claims, made to suit the Patent Office, and still holds as much as before.

Now, Bro. Root, you say that you have sent for the three copies of old patents my attorney was cited to, as referred to by Mr. Williamson. Why, bless your soul, 22 citations were handed out by the examiners, and yet only three or four of them contained a single feature in any way resembling any part of my hive, and these were nothing fatal to the value of my patent. Firing at us irrelevant citations is a privilege of the examiners. These 22 copies I lost in the fire in Patent-Attorney R. B. Wheeler's office in Detroit, about four years ago. I have never replaced them, because they have no bearing against the title to my property, when rightly understood. I will ask one question, which, if bee-keepers can not answer in the affirmative, the argument based upon these citations falls to the ground. Are you willing to, and do you expect to use, the features and functions shown in these old patents, *as and for the purposes therein specified*? If not, what do you propose to do? What is it that is just now so greatly desired? Fill GLEANINGS from cover to cover with nothing but sophistical, misleading, and confusing discussions by patent-lawyers, and, in the end, down in the hearts of all honest bee-keepers will remain this verdict: "To Heddon belongs the practical, divisible brood-chamber, with its reversible cases and close-fitting frames closely fitting the case, as and for the purposes specified in his patent, and further explained in his book, Success in Bee Culture."

To close, I will say that I notice your statement, that you "take no side in the matter." I believe you should, and believe you will—not with persons, but with principles. I know that you know the property to be mine, all the time you are discussing the question of the technically legal title to the same; and I think it strange that, in your last issue, you confuse yourself wholly to the matter of title, utterly ignoring the question of right *per se*. It seems to me that this is almost the only point the mass of your readers can understandingly decide upon, and upon that I know they are already decided. However, if you wish to educate us all in the details of patent law I will not be displeased, and my attorneys will be on hand promptly.

It seems to me that the matter stands about like this: Mr. Martin has voiced the sentiments of nearly all of our bee-keepers in proclaiming the fact that Mr. Danzenbaker's hive is a "gross infringement" on my invention. No one has ever claimed that I have infringed any man's rights. Nine years elapsed before any such claims as attorney Williamson's were made, because it required that length of time for Mr. Danzenbaker to discover the value of my invention. Why does not Mr. D. apply his patent-

claims to a hive-construction which does not infringe mine? (Remember that it is his *construction* and not his claims of invention that infringes.) I thank you for your offer to give us all a fair and impartial hearing.

JAMES HEDDON.

Dowagiac, Mich.

[Mr. Heddon indirectly asks whether a proof of his former article was sent to Mr. Danzenbaker's attorney. No such proof was sent; but I wrote to Mr. D., requesting that his attorney state whether Mr. H. had either a legal or a moral right to the divisible-brood-chamber idea, and hence Mr. Williamson's reference to the "moral right."

Whatever legal claims Mr. Heddon may or may not have, if he has, by these years of advertising, made popular a certain system—if he has been the first one to show the *world at large* that it may have points of merit, then he certainly has a kind of moral right—a right which I think bee-keepers will be quick to respect. Understand, I do not go so far as to say that he has or has not legal or moral right to certain hive-constructions. I could render an opinion, but, as I said, I shall adhere strictly to the ground of taking no sides. I can not do any better than to repeat the words of the great Master of all things, who said, under similar circumstances, "Render unto Caesar the things that are Caesar's." Naturally, after the severe way in which Mr. Heddon has criticised us in the Dowagiac *Times* extra, we should be inclined to take sides against him, but this should and does have nothing to do with the matter at all. I do not very often stand "on the fence;" but for the present, at least, I do not know of any reason why any of us here at the Home of the Honey-bees should desire to get on either side of said fence.—Ed.]

A NEW DEPARTURE.

"Trade Notes," a corner in which we poor inventors may blow our horns "with none to molest or make us afraid," as I see from the last issue of GLEANINGS. Now, that is "fair play," and we all like fair play—at least, for ourselves; we are not always so particular about the other fellow, I am afraid; so I will just trot out my hobby—a kind of hobby it is, the Crane smoker, which is henceforth to wear that little motto, "*Patented March 12, 1895*," which witnesses that the United States government, through one of its departments, has carefully examined into my claims, and has pronounced them "new and useful," and that it is ready, through its courts, and, for aught I know, its army and ironclads, to defend them. My claims are very quickly told: An air-chamber situated between the fire-chamber and bellows, one end extending and opening into base of the fire-chamber, and the other communicating with the outside atmosphere, and a valve so situated as to open and close alternately this opening, so that, as the bellows closes, the valve opens, thus forming a continuous passage from the bellows to the fire-chamber; and when the bellows opens, the valve closes, thus giving a draft to the fire-chamber.

The advantages to be obtained are twofold—a strong blast, and the exclusion of smoke and sparks from the bellows; and when the smoker

is properly constructed I believe these advantages are fully attained.

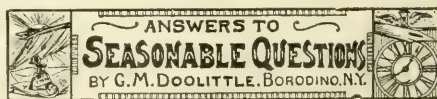
So far as I know, the use of a jacket of tin completely surrounding and extending some way below the fire-chamber toward the bellows is original with me. I think it would be better if plain tin were used for this purpose, and small washers were used where it is riveted to the fire-chamber, so it would set out $\frac{1}{2}$ inch from it on the back, although it might not look quite so well then as now manufactured.

My claims were allowed some months ago; but for various reasons I delayed having it issued until the present month.

There are some obvious reasons why a new invention, or an improvement on an old one, should be patented, one or two of which I will mention: It greatly facilitates its introduction to the industrial world, and often enables the manufacturer to pay the inventor a fair royalty, and then, by manufacturing in large quantities, be able to sell them for even less to the consumers than would be possible if a large number of persons engaged in their manufacture without paying royalty.

J. E. CRANE.

Middlebury, Vt., March 22.



NON-SWARMING BEES.

Question.—Three years ago last June I purchased a queen of you said to be reared by the plan given in your book. This queen has done well for me; but the point of interest just now is this: Although she has kept her hive full to overflowing with bees, fully as well as any queen I have, yet only one swarm has issued from her colony since I got her. About the time I received her I purchased your book and reared a few queens in accord therewith. Very few of the queens so reared have led out swarms, and the bees behave very similarly to those from the queen purchased from you, while my other colonies have kept up excessive swarming each year. The queens not reared in accord with your book were reared under the swarming impulse, by colonies casting swarms, as are the most of the queens in any apiary where the bees are allowed to swarm. Now, I should like to know if you claim that queens reared by the plan given in "Scientific Queen-rearing" have a greater tendency not to swarm than those reared by the bees during the swarming season, as most bee-keepers allow their bees to rear them.

Answer.—I have never made the claim that queens reared in upper stories, over a queen-excluder, while the reigning queen was doing good work below, were less inclined to swarm than were those reared when the bees were pre-

paring to swarm, as I formerly raised all queens, then claiming, as many do now, that queens reared under the swarming impulse were the very best possible to raise. Some twenty years ago I noticed that queens reared to supersede a failing queen were less inclined to swarm than were those reared during the height of swarming, and so noted the matter on my diary; and during all the time intervening, since I first noted this matter, I have had no cause to change my first conclusion. Queens reared as given in my book are brought to perfection in very much the same way as are those reared when a case of supersedure happens; and I have noted that I have had less swarming in my apiary during the past eight years, through which time I have reared nearly all my queens over queen-excluders, than I formerly had; yet I would not think it best to put forth the idea that a continuation of thus rearing queens for a quarter of a century or longer would give a race of non-swarming bees. When God told all animated nature to go forth, "multiply, and replenish the earth," he implanted in the same a nature so to do; and if that nature is not carried out in bee-life, through the issuing of swarms, it will come about through the intervention of men, by way of such manipulation of hives as will throw the colony out of its normal condition, rather than by breeding for a race of non-swarming queens. At least, such is my opinion. I have received many letters similar to the above, relative to less swarming occurring since the parties writing had practiced the plan of raising queens as given in "Scientific Queen-rearing;" but it must be remembered that the past few seasons, taking the country as a whole, have been rather poor seasons, hence would be conducive to less swarming. Of course, there is no harm in watching this matter; but to put forth the claim that a persistent rearing of queens over a queen-excluding honey-board will bring forth a race of non-swarming bees would only end in disgusting those who went into such a trial with a full belief in the honesty of the one making such claim.

COLONIES LEAVING THEIR HIVES.

Question.—What is the cause of bees leaving their hives with clean honey, clean hives, and quite a quantity of brood, in the spring of the year? Three of my colonies have deserted their hives in this way on warm days; and although I have put them back they will not stay. What can I do to remedy this matter?

Answer.—This is a case of what is termed "swarming out" by some, and "spring desertion" by others. In an experience of a quarter of a century I have had about a dozen such cases, and in each one it has happened after a hard winter, such as the past has been, and with colonies which had wintered imperfectly. Some think it is caused by the bees becoming discouraged, and abandoning further effort to

keep up the temperature of the hive so as to keep the brood from perishing. In nearly every case which has come under my notice, colonies deserting their hive have become reduced as to numbers to a greater or less extent by spring dwindling; while the number of bees, compared with the amount of brood, was ill proportioned, considering the outside temperature. I used to think that such swarming out could be accounted for on the ground of lack of stores, moldy combs, etc., as has been told us many times in the different bee-papers of the past; but after having several swarm out when all was clean and nice, the same as is spoken of by our questioner, I had to give that up and conclude that those who had told us that such was the cause were mistaken. Some seem to think that the chief cause of this swarming-out mania lies in excitement on the part of the queen, the same happening at a time when few young bees are in the hive to keep company with the queen, when a general flight of the bees takes place, which often happens during the first warm days in early spring. During such occasions the queen becomes excited about being left with so few bees with her, goes to the entrance, takes wing, and sallies out to join the circling bees; and when once in the air with the bees the whole alight as a swarm. But I can hardly accept this as the cause, for the reason that, as our correspondent states, when we hive them back again in their own hive, they will swarm out again and continue to swarm out till they enter some other colony or go off entirely. As to a remedy, I doubt whether there is any better than to unite such with some other colony, although I have tried giving a frame of hatching brood from some strong colony to them, removing all their brood and giving it to the strong colony from which the frame of hatching brood was taken. Next, place this frame of hatching brood together with one frame of honey next one side of their hive, and confine the bees to these two frames by means of a division-board till they become strong enough to take more frames, when they are built up to full colonies. This is the plan I used to adopt with good results, where for from any cause I desired to save just that individual colony. Lately, since the queen-excluding zinc has become common I have simply hived back in its own hive the colony swarming out, and placed a strip of perforated zinc at the entrance, thus keeping the queen from going out, in which case the bees will return after each swarming-out; and if such colony so treated does not die by dwindling it can usually be saved in this way. But, as I said, unless for some reason you wish to preserve the individuality of any colony which once swarms out, the best thing to do is to unite it with some other colony, as the work required to make a good colony of such a discouraged colony amounts to more than any ordinary colony is worth.

Heads of Grain

FROM DIFFERENT FIELDS

THE RECORD BROKEN AGAIN ON DEER-SHOOTING BY A BEE-KEEPER.

On page 170 Mr. J. D. Given asks for a better record on shooting and killing game than he has. I will admit his score is good, and hard to equal. I used to think I was fairly good with the gun myself. I use a rifle instead of a shotgun. I have stood in one place and killed five deer with six shots. The gun was a single-shot breech-loader. The first shot I fired, the deer was about forty feet distant, and the last one was about 400 feet. There were only five deer in the band, all full grown black-tails. I have frequently killed three and four out of a band before they would get away. At another time there were four of us boys worked up to a band of elk. I killed three while the other boys got none. At another time there was a party of ten of us went on a buffalo-hunt. We killed 42 buffalo, 6 antelope, and 2 deer. I killed 39 of the buffalo, the 6 antelope, and 2 deer. I have fired 26 cartridges without missing a single shot, and with the same I killed not less than 10 tons of meat. Seeing this is not a sporting-paper I will let up; but we have bee-keepers here who have records all right. This shooting was done from 1868 to 1876. Use this if you see fit; and if you wish any more records I have plenty left, on up to killing Indians.

BUCKSKIN CHARLEY.

Aurora, Neb., Mar. 13.

[Among his other accomplishments "Buckskin Charley" is the inventor of a section-press and foundation-fastener that seems to have merit, judging from the engravings and description in a circular sent. Verily, is there any thing bee-keepers can't do between being legislators and breaking the records on shooting deer? By the way, I am interested in gunning. When I was sick last fall, and convalescing, the doctor prescribed the shot-gun and long tramps. I got both of them, but *game*—not any. Indeed, I "broke the record for the county" in missing every thing I shot at. May be if we had deer here I could miss them too.—Ed.]

SCORE FOR THE BEES.

At the Oregon Experiment Station, peaches were grown under glass, and forced, by artificial heat, out of their natural season. In such culture, it is necessary to pollinize the flowers by some artificial means—a brush or otherwise. This is very slow, tedious work. Bulletin 34 of this station tells what was done: "To save labor in transferring the pollen, some trees were sprayed when in full bloom with warm, others with cold water. This proved very unsatisfactory, more fruit dropping at the stoning period than in the case of trees pollinized with the brush. As a further experiment, a hive of bees was placed in the house when the trees commenced to bloom. This was in November,

and a heavy fog prevailed for 15 days; and although the flowers were constantly opening, not a bee showed itself. During the night of the 15th the fog lifted, and the next morning was bright and clear, causing the pollen to burst. Then the bees came from the hive and kept up their work for eight or nine days. The result was, that not a single peach was observed to drop at the stoning season. So great was the amount of fruit on the trees, that it was necessary to thin it. One tree in the house was securely protected, so that bees could not gain access to it, and all of the fruit dropped at the stoning period."—*Rural New-Yorker*.

THAT EUROPEAN AUTOMATIC SMOKER.

Mr. Chas. Norman, in "European Matters," talks about an automatic smoker. I inclose an

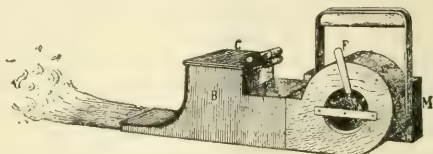


illustration. I don't think it will ever do for any "go-ahead" bee-keeper. Some one of my acquaintance having seen it says the automatic movement, produced by a kind of clockwork, is very noisy. My impression is against this smoker. You can judge for yourself.

Winter has been very severe in France; but our situation behind the Alps, in Nice, has kept away the fierce cold all our neighbors had to undergo this exceptional year. We had snow three times, though not to stay longer than a day or two. In Palestine my people want rain, especially in Jerusalem—very much exposed to east winds, which dry up every plant. Last year, 1894, was a very poor season here. I hope 1895 will be better. I didn't have one-fifth of my usual honey-harvest.

Nice, France. PH. J. BALDENSPERGER.

[The smoker is not reproduced because I think it practicable for this or any other country, but because it represents an idea.—Ed.]

HONEY FROM RASPBERRIES.

I wish to attempt to correct two mistakes in your list of seeds of honey-plants, which I cut out and inclose. I was brought up on a fruit-farm, and have kept bees since I was 12 years old. It is the *red* raspberries that the bees work on principally. They work some on black raspberries, and a very little on blackberries; but the bulk of the raspberry honey comes from the *wild* red raspberry. The cultivated is as good, or better, but there is not enough of it.

Sanct Run, Md.

C. A. MONTAGUE.

CORRECTION.

Friend Root:—In GLEANINGS for March 15, you apparently committed me to the proposition that bee-paralysis is hereditary, by your

headline to my paper on that subject. It should have been headed "Bee-paralysis Contagious." I do not believe that the disease is hereditary in the strict sense of the term, but that an infected queen will communicate the disease in the ordinary way by contact. I do not wish to reopen the discussion of this matter, but simply to make a correction. T. S. FORD.

Columbia, Miss., April 9.

THE GOSPEL OF ART.

Work thou for pleasure; paint or sing or carve
The things thou lovest, though the body starve.
Who works for glory, misses oft the goal;
Who works for money, coins his very soul.
Work for work's sake, then, and it may be
That these things shall be added unto thee.

KENYON COX.



H. Y., Wash.—Bees can not, with any satisfactory results, be kept in a room adjoining the kitchen over winter. You had better leave them outdoors. In your climate they will probably winter all right. It might be advisable to put over them winter protecting-cases.

W. S. Y., Ia.—We leave chaff cushions on the hives along toward the first of June in our locality. It is better to leave them on a little too long than not long enough; in fact, it does no harm to leave them on all summer, only that they take the place of section-crates or any supers designed to take surplus.

W. B. R., Va.—The braula, or bee-louse, we sometimes find on the backs of imported queens direct from Italy; but we never knew them to make any serious trouble. The bees themselves will soon remove them when the queen is introduced into a strong colony. We do not know where you will find any further particulars than those given by Prof. Cook in his book.

H. M. S., O.—We would say we recommend the use of full sheets of foundation in the brood-frames; medium brood if wired, and heavy brood if unwired. Yes, we recommend wiring, running the wires parallel with the top-bar. Yes, use thick top-bars.—Carniolan queens are preferred by some; would refer you to John Andrews, Patten's Mills, N. Y., or Mrs. Jennie Atchley, Beeville, Tex.

M. J. A., R. I.—Hives, as a general rule, should face the east. If they are placed toward the south it gives them too much sun in the middle of the day. If they face the west they are apt to get too much wind; if toward the north, also too much wind and too much cold. Taking all things into consideration, having

hives point toward the east is preferred by the majority of bee-keepers.

W. F. C., Ore.—When the bees build the combs crosswise we don't know of any way but to cut the combs out, straighten them out, and fit them back into the frames by the directions that are usually given for transferring. If they are too crooked for that, use the Heddon short way, given on page 32 of our catalog. We always advise beginners, and everybody else, in fact, to put at least a small starter in each brood-frame; otherwise they may have a condition of things much like yours.

W. H. W., Tex.—The half-inch space in the Dovetailed hive, back of the division-board, has a purpose. If every thing fit down in the hive snug and tight you would have difficulty in removing the Hoffman frames. We therefore have provided what we call the "lateral play." Remove the brood-frames; shove the division-board into the half-inch space. That breaks propolis connections. Remove the division-board, and then you have room to shove over the brood-frames and handle the same easily.

J. M., Kan.—A good deal will depend upon locality as to whether you can use two-story eight-frame hives with the section-crate on top. The colony should be a tremendously strong one, with brood and honey in both stories before any surplus will be put into the sections.—Bees will be likely to fill the second story with honey or brood before they occupy the section-crate.—The yield of section honey from the two eight-frame bodies all depends upon your locality, season, and size of colony.

J. R. W., Minn.—The circumstance you relate regarding drones from black queens is not an unusual one. Indeed, the progeny from hybrids—that is, a black queen fertilized by an Italian drone—will vary all the way from black to bright-yellow bees or drones. We very often see some very nicely marked Italian drones from queens that are perfectly black; therefore it is not color always that decides purity. If you were to take some of those nicely marked drones, and mate them with pure Italian queens, if it were possible, you would find the resulting progeny only $\frac{1}{4}$ Italian.

G. F. H., Cal.—The best inside lining for a solar wax-extractor of small size is Russia iron. Zinc and galvanized iron would darken the wax, and, besides, would reflect back too much of the light. Of course, if you can get an asphaltum that will not be affected by the heat or the wax it will make no difference what metal you use. The asphaltum used by photostock dealers for painting developing-trays would be about the thing. For large-sized extractors there is nothing better than matched boards of butternut wood, or something that will not shrink much. These, of course, should be painted black.



EXTRA pages and extra editions as usual. It is a good time to advertise and to send in new names. Yes, indeed, the new names are coming in fast now, so our subscription clerks reports.

BRIGHT sunshine, the merry hum of the bees, good bicycle roads, piles of orders, lots of work, and a good spring all around, are making us here at the Home of the Honey-bees happy. Our buildings were never filled with so many employees as now.

W. O. VICTOR, of Wharton, Texas, one of the prominent and leading bee-keepers of that State, sent us a couple of twigs from the rattan vine. It yields considerable honey in that State. He says it usually yields first-class honey anywhere from ten to twenty days.

In our occasional department, headed "Question-Box," I have concluded not to state the question, because it is usually implied in the answer. I do this in order to save space. The answers that are published are a few selected from our daily correspondence, that I think are of general interest to A B C scholars.

It is a pleasure to announce that our friend and co-worker, Mr. R. F. Holtermann, of the *Canadian Bee Journal*, has received from the Ontario government the appointment of Lecturer on Apiculture at the Ontario Agricultural College. He is also in charge of the experiment apiary connected with the college. He is a good man for the place, and we shall look for some good work.

WE have received but one call for Given foundation made on rolls. Either it is or is not a good thing; and I am anxious to see it tried by different bee-keepers, not so much for the paltry profit there may be in fussing with a small quantity, but to determine whether it has real merit in the hands of others. We are ready to put in one, two, or half a dozen sheets with your regular foundation, when so requested.

From the last *American Bee Journal* it appears that the usual \$500 appropriation for the benefit of the Illinois State Bee-keepers' Association will not be granted this year. "The dairymen fared the same as the bee-keepers, and the horticulturists are not sure of getting any thing much better," writes Secretary Stone. The cause is attributed to the condition of the State treasury.

WE have now obtained some lysol, that new drug for curing foul brood, mentioned by C. J.

H. Gravenhorst as giving very satisfactory results in Germany. See his article on page 308, last issue. We will, till the supply is exhausted, send out a small vial of the liquid, a sufficient quantity for curing several colonies (10 cts.), to those who may have foul brood in their apiaries, and who care to make a trial test and report. It will be folly for American bee-keepers to shut their eyes against all drug remedies, and claim that there is no cure but extermination and the foundation plan.

WHATEVER legal or moral claims Mr. Heddon may really have over the Danzenbaker hive, it is but just to Mr. Danzenbaker to say that, so far as I know him, he would not appropriate any thing that properly belongs to another, not even an idea. He thoroughly believes, and I think he is honest in that belief, that his hive is not an infringement, and that Mr. Heddon does not have either moral or legal claim over any feature of the Danzenbaker hive.

HOW FATHER LANGSTROTH IS APPRECIATED BY A BEE-KEEPER IN COSTA RICA.

A PROMINENT bee-keeper, who does not wish to have his name printed, but living in Costa Rica, the most southerly of the small republics constituting Central America, seeing the article on page 170, March 1st GLEANINGS, soliciting funds for Mr. Langstroth, very generously sent a contribution of \$10.00, asking us to forward the same to Mr. L., whom he considered a real benefactor to him also. The amount was forwarded, and has been acknowledged with thanks by Mr. Langstroth's daughter.

I am sure our American bee-keepers appreciate this, not because of the largeness of the gift, but because of the spirit which prompted it. I can only regret that many of our American bee-keepers, using the Langstroth system, have forgotten to send in their annuity fund even when they agreed voluntarily to send it each year as long as Mr. Langstroth lived. I am informed that our venerable and much-respected friend is in very feeble health, and he does not seem to improve with the charming spring weather. Any funds that may be sent in will be received by ourselves, or by Geo. W. York, 56 Fifth Ave., Chicago.

DEATH OF CHRISTOPHER GRIMM.

As we go to press, a notice reaches us that Christopher Grimm is no more. Most of our readers knew him as the brother of Adam Grimm, and one who has for many years made it almost a religious duty to be present at the meetings of the North American Bee-keepers' Association. In fact, we well remember his genial smile and hearty handshake at our last meeting at St. Joseph. Christopher Grimm was known all over the United States as the successful and intelligent bee-keeper, his number of colonies reaching at one time 1000 or more.

I remember him as one of the brightest types of a genial, good-natured representative of Germany—a man of the most strict integrity and honesty. He was born at Halenbrunn, Germany, March 18, 1828, and died April 20, 1895. His home for the last thirty years has been at Jefferson, Wis. A. I. R.

STATISTICAL REPORT ON WINTERING.

In response to our inquiry in our last issue, for reports on wintering, we have received about 100 letters. I was surprised at the good showing. Scarcely one had lost over 33 per cent, and there was a very large number who had lost absolutely none whatever. As was to be expected, inexperienced and slipshod bee-keepers did not winter as well as those who read bee-journals. But before these reports came in, quite a number of our agents who are selling our goods wrote that they would not be needing the usual amount of bee-supplies, as bee-keepers had lost pretty heavily all around them. I have wondered whether they, the agents, were not guessing that the losses would be much greater than they really were. The fact of the matter is, that, although we have had very severe winter, the spring and fall were unusually favorable; and experience has shown, time and again, that it is much harder to "spring" bees than to winter them. After a severe winter and a moderate spring, bees will come out from their winter quarters in very much better condition than when the reverse is true—a moderate winter with a prolonged cold spring.

HAS "HE DONE AND GONE AND DONE IT?"

"OBSERVER," in *Progressive Bee-keeper* for April 1, gives expression to the following:

We knew Ernest Root was incubating something to take us in with some time ago, and now he's "done and gone and done it." That twelve-frame hive is what's the matter now. Say, friend R., can't you give us a rest? We don't want any more new hives for a while yet. What we want is more honey, and more money for the honey. Will the twelve-frames give us that?

If I have advocated the twelve-frame hive in preference to the eight or ten, I did not know it. I believe the most I have ever said in its favor was that there was a possibility that large hives would give better results. I knew our sixteen-frame colonies at our basswood yard last summer had done better than the eight-frame; but this was only one straw. A short time ago, from the testimony that came in I concluded, and so expressed myself on these pages, that sixteen was too large, and that, if we must have large hives, the twelve-frame was the extreme limit. The substance of this opinion is given in several different numbers, and I do not see how from this I have "gone and done it" or how I was "incubating something" to take in the unsuspecting. I have written the hive matter in our catalog; and

while admitting that ten and twelve frames may be preferred by a few, I urged strongly the use of the eight frame—see second paragraph, page 4. Dear me! Some one else has been saying that I am an advocate of a double brood-nest. I did not know it before. I am simply open to conviction, and have been *trying* to call forth the truth, no matter whether it favors supply-dealers or anybody else. If we *ever* adopt the twelve-frame as the standard it will be much against our will and our pocketbooks, as well as the pocketbooks of bee-keepers who might be foolish enough to follow every such fad. Take it all in all, Observer, if I am not very much in error we stand on about the same footing, and I therefore indorse your two last sentences heartily; but at the same time do we want to shut our eyes to the value that there may be in other systems and in other managements? It is a publisher's business to dish up the truth impartially. Am I not right?

WHAT I THINK ABOUT PATENTS.

WHAT do you think I have on my desk, in a prominent position? A patent-binder—not something that I patented myself, but a binder containing copies of patents of all important apicultural inventions. We have made arrangements whereby we now receive a copy of all patents on apicultural inventions as soon as they are issued from the Patent Office. Some of them, I feel sure, will never bring their owners any return; others give promise of being useful, and perhaps will be of some advantage to their owners in a pecuniary way. I hope so. Whatever may have been the opinions of my respected parent in the past, the more I look into the patent system in the United States the more I feel like admiring it. Although it has its defects, the system in our country, I believe the world acknowledges, is the most perfect in the world. And the fact that some of the greatest and most useful inventions have emanated from this land is evidence along this line.

Are we going to patent any of our recent devices? No—that is, we have no intention of doing so now. But I have advised one or two—yes, several—to secure their ideas by patent, even when I knew that such a patent might compel us in time to pay royalty. As examples of this I would refer to the Crane smoker and the Porter bee-escape, both now well-known and useful implements. I believe most thoroughly in the idea that inventive genius, and the product of the brain in this line, should be rewarded. On the other hand, I believe that our patent system should be so modified as to restrict some of the fearful abuses connected with some of these patent-monopolies. I am glad to see that the Supreme Court has recently made some much-needed and substantial limitations.



ON THE INDIAN RIVER.

The Indian River is generally mentioned as a synonym of something balmy and tropical. On the morning of the 7th of February, however, there was a keen northwest wind, and things were not so very tropical after all. Friend Gifford is employed by the government to light and trim the lights that are kept constantly burning for beacon-signals along the Indian River; and you know Uncle Sam's business must be attended to, visitors or no visitors. Friend Gifford had been planning to take me on this trip; but I was pretty nearly sick, and the state of the weather seemed to indicate that the trip would have to be given up. But I changed my mind before he reached the boat-landing and followed after him. Up in the garret of the Gifford home there was a heavy old overcoat that had done service away back in Vermont. After having had about ten years of repose in said garret it was brought down on that eventful morning. It was large enough so I could get it on over my own overcoat, and, thus rigged, I began to take almost my first lessons in running a sail-boat under a heavy wind. I enjoyed the trip, however, very much, in spite of the wind and cold. These beacon-lights are to direct the boating craft after dark; and as it is necessary to go several miles to replenish the lamps, they are allowed to burn night and day, the expense of the oil being less than the cost of travel needed to keep them lighted all the time. One not accustomed to boating might think a steamer could go anywhere. Not so, however. The highways of vessels are laid out almost like the roads overland; and wherever there are dangerous points, piles are driven at stated periods, projecting above the water enough so a board may be nailed on, indicating to the pilot of the boat the channel. Sometimes these guiding-posts are within a quarter of a mile of each other or even less; again, they are a mile or even two miles apart, the pilot understanding the signification so that he may avoid the shallows. Well, in the night time they use these lamps as a guide to the pilot, and they are near enough together so that one or more of them are always in sight. At each lighting-station our little sail-boat had to be securely lashed to the framework of timbers supporting the light. Then friend Gifford climbed aloft with his substantial copper lamps, carrying a great hood made of sail cloth, to cover himself and lamp while he did the trimming and filling, and cleaned the chimneys, etc. It seemed as if the wind would tear the boat loose sometimes; and, in fact, unless very stout ropes are used, boats often do break away. When the wind was the highest, it was necessary to lower the sail before trying up the boat; and then it had to be hoisted again when we started out amid the boisterous wind. Sometimes it seemed as if we surely would upset. But friend Gifford had a knack of handling the flapping sail as an expert would handle a vicious colt. Just once the rope got caught, and I thought we were going over sure into the cold briny water, amid the boisterous and almost deafening gusts of wind. But he was equal to the occasion; and once when the water actually came over into the boat a little, and I began to turn white from the scare, a single glance at his self-possessed smiling countenance reassured me. I shall long remember that experience on the water;

and I enjoyed it greatly, although I did get cold and stiff before we finished our day's work. He said it was almost the first unpleasant day for the work he had had for the business in all the years he had held the post.

The next day, although it was still cold, we started out to see the bee-keepers. We stopped briefly at the home of Mrs. J. D. H. Weir, Toledo; but the weather was so cold that both the bees and the interesting family of children were kept pretty well indoors. Children seemed to be so scarce in that part of Florida that it rejoiced my heart to get a glimpse of even a tolerable-sized family. If we don't have any children we surely can not have any schools; and if we do not have schools, what will become of us?

We made a brief call at Woodley, and then pushed on to friend King's, where I reluctantly decided I was too sick to go any further. I have mentioned briefly something of that pleasant visit prolonged to several days when I expected to stay only an hour or two. Friend King is a very quiet, still sort of man; but even if he does not talk much he does a tremendous lot of thinking; and, by the way, a big lot of work comes about in his quiet sort of way. Several times I heard him nailing up work before daylight; and when I was up so as to look out of the window, there he was out in the dooryard, working by the light of his lantern. He has now several hundred colonies of bees, and has secured some crops of honey almost equal to those a little further north around New Smyrna. His good wife busies herself with a fine flock of poultry numbering almost a hundred laying hens, while he looks after the bees and makes the hives.

FLORIDA ANTS, ETC.

In many parts of Florida they are pestered by a species of large ant. At Daytona I found some of the bee-keepers setting their hives on legs, and planting each leg in a dish of water. But even then leaves blew in on top of the water and made a bridge for the ants to get over. Besides, unless the water was watched it would evaporate from the dishes, and then the ants would get through again. Friend King studied over this matter, and finally went to the woods (all about him), where pine-trees are so plentiful and cheap, and cut down some tall trees. Two of these were placed side by side, and spiked together just far enough apart to hold a hive conveniently; then legs were put on to this long frame so as to raise it up to a convenient height for working. Then the legs of this huge bench were set in wooden troughs hewed out from these same pine logs. You see, when the wooden trough is filled with water it lasts a good while; and three of these troughs will hold a frame long enough to support, say, a dozen or may be twenty hives of bees, the long frame being supported at each end and once in the middle. After he had got his apiary of several hundred colonies fixed in this way he decided it would be cheaper to cut a ditch clear around his apiary, house, and garden, and then fill the ditch with water. The ditch is needed any way, where there are so many forest-trees, to prevent the roots from the forest coming in and using up his expensive fertilizers. After the ditch was finished, however, he found that the water was not actually needed. The soil is so sandy that, when the ants get to the bottom of the ditch, they find it impossible to climb up the steep sides, because the sand gives way, especially if the ground is dry, and lets them roll back into the ditch. After he got the ditch all finished he said the ants came from the woods in great bodies, and literally piled up beside it, and stayed there days, evidently mad because they could not get over to the hives and help themselves to the

honey and young larvæ as they had done in former days.

By the way, friend King is a pretty determined man when he sets out to succeed. He found the ants did most of their brooding in rotten logs in the woods, so he took his wife's flock of poultry, coaxed them out into the woods with corn or other grain, then chopped open the logs and taught them to devour the white larvæ of the ants. The chickens soon became very fond of such food, and in time he came out victor. The ants got along very well with the water-troughs and even the ditch; but when he retaliated by taking his hens out into the woods to eat the ants' larvæ—their children—instead of letting them eat the young bees from his hives, they concluded, evidently, that this was a little *too* much. It was the last straw that broke the back of the camel, you remember; so the ants packed up their tents and moved away to a healthier locality. And, by the way, there is a lesson or two right here. When we begin to wage a determined warfare on any insect-foe—so determined as to take up the *aggressive* instead of the defensive, and follow them to their *holes* as it were—they will pretty soon take the hint and abandon the ranch. Tracking and chasing them up to their breeding-places is, a great many times, cheaper than drugs—Terry's plan of managing potatoes, for instance.

BEE-PARALYSIS IN FLORIDA.

Friend King has had some experience with bee-paralysis, and he tried an experiment that was new to me. He took some of the brood from a suffering colony, and put it with a healthy colony to see whether the bees, when they hatched out, would have the paralysis. Has anybody else ever tried this? Is the disease one of the brood, or is it something that the bees get after they are able to fly? If I remember correctly, he said they had no paralysis in the new hive on a new location. This does not strengthen my position that I took so many years ago; namely, that the diseased bees were those reared from a certain queen, and that, when you remove the queen and put in a healthy one, the disease is cured.

On this Florida soil, where fertilizers must be used, at least on the greater part of it, I found there is much discussion and much uncertainty, as with us up north. Friend King paid \$22.00 for a ton of what he called Gainesville fertilizer, and he says he does not believe it did him a nickel's worth of good. Very likely it was something his soil did not need. His poultry manure, however, always gives a sure and profitable return; and he says he verily believes the manure from the poultry is worth half as much as it costs to feed them, even when fed on grain that has to be shipped down from the North. In other places I found similar statements. Poultry manure always tells on almost all kinds of garden stuff or fruit. One of Mr. King's neighbors saved half an acre of melons during the freeze by covering them with sand. He is an unmarried man, and went out to see his "best girl" on that eventful night. When he returned home to his ranch at half-past eleven at night he realized the danger his melons were in. You know melons are planted a good way apart, and therefore it does not cost so much to cover each hill with sand. He worked about three hours, and all were saved except a few where he did not put on quite enough sand. Friend King saved 1500 tomato-plants through the first freeze, by a similar proceeding; but he lost them all during the second. Some of them had tomatoes on at the time, as big as hickorynuts. When I was able to get around, my friends declared I must stay at least one more day to visit

PELICAN ISLAND.

It was not *altogether* curiosity that made me want to see this wonderful island. As the water all about the island was quite shallow, we were obliged to use a row-boat; and even this ran aground so many times that we were some time in finding a landing, and succeeded only by wading (Mr. King *carrying* his better half) ashore. Before we reached the island a swarm of these strange birds, with their queer-looking pouch or gripsack hanging to the under side of the bill met our view. They are as large as a good-sized goose, or perhaps a little larger; and we found them not only filling the air but on the water all around the island; and on the island itself were hundreds and thousands, apparently sitting still with their funny-looking heads sticking straight up, and that long queer bill, with its appendage, hanging almost straight down. They did not seem to be very much afraid of us, for we could come up near enough to hit them with clubs were we viciously disposed. Hundreds of nests met our view containing eggs, young just hatched, and from that up to birds of all sizes until some of them were ready to fly. The freeze had driven the fish away into deep water, and the poor things were having a sort of famine on account of the unusual cold. In fact, the young pelicans were suffering to such an extent that, when we came along, they would open their mouths and beg most piteously for their accustomed food. They even hopped out of their nests, and ran after us with mouth stretched wide. The scene was so touching and painful that I turned away. The friends assured me that nothing could be done but to wait for warmer weather and the reappearance of fish. This island has probably been the breeding-place of these birds for ages. In fact, the manure has accumulated to the depth of several feet, covering the island, and almost extinguishing vegetation of every sort. At one time it was suggested that this sea-bird manure might be of value like guano; but the trouble is here, the fertilizer is not only drenched by the incessant rains of Florida, but at stated periods the salt water is blown by winds almost over the entire island. One wonders why these birds should come from miles in every direction to congregate on this one particular bit of land. The island contains perhaps some four or five acres; and it is almost completely monopolized by the birds. If these birds have been in the habit of roosting and nesting here since they came on the face of the earth, why should not this deposit be still larger? I believe friend King told me that the oldest inhabitants have a sort of tradition that there *was* a time when the island was not thus occupied. If this be true, what should cause the birds to change from one place to another? I afterward discussed the matter with the State Chemist, of Lake City. He also agreed that the accumulation of fertilizer was of little or no value. The guano of commerce all comes from islands where little or no rain falls, or from caves where birds and bats congregate, protected from the rain and its consequent leaching.

The second thing that interested me in regard to this island was the fact that here, right under my eyes, was a poultry establishment carried on entirely without the guiding hand of man. The birds themselves, and the instinct implanted in them by the great God above, managed the whole thing and did it successfully. Now, if pelicans can breed and multiply enormously without human agency, why can not a properly arranged island or inclosure be made to do the same with common fowls? If we have not breeds adapted to the circumstance demanded, then get somebody to

furnish us the breed. I once had one little brown leghorn hen that I verily believe would have peopled a farm with poultry all alone by herself, and in a very short time too, if plenty of food could have been provided for her and the chicks.

"Are pelicans' eggs edible?" you may ask. I think my friends told me they were eaten by some people; but as the diet of the birds is exclusively salt-water fish, the eggs are rather rank in flavor. Now, if any reader of GLEANINGS can tell me of a successful effort at raising poultry where they manage to raise chickens all by themselves, I should like to hear about it. I suppose you know the enormous wealth of the great cattle-kings of California, Arizona, and Florida, is secured in something this way. The cattle run wild, and breed after nature's fashion, the hand of man never coming in at all except to put the proper brand on the calves as fast as they arrive at a proper age. The flock grows and multiplies as the years pass, without any management from the owner—the only condition being, indeed, a sufficiency of pasturage.

On our way home we stopped at a pretty little point called Orchid; and it was quite an agreeable surprise to find, away out in the wilderness, a pretty little home full of books, magazines, and periodicals, presided over by a newly married couple—Mr. and Mrs. Forester. In their beautiful garden, watered by an ever-flowing artesian well, we found orange-trees containing leaves, blossoms, and fruit in limited quantity, unharmed by either the first or second freeze. This little bit of Eden is protected by both water and the great tall spreading palm-trees. It is on a strip of land between Indian River and the ocean-beach. We also saw beans under the protection of the palm-trees, that had passed the ordeal of both frosts. This would not have been sufficient, however, were it not for the water on each side of it. The place has been named "Orchid" because tropical plants like the orchid here find a safe place to grow and thrive ordinarily. The plan of irrigation here is to have the artesian-well pipe come up in the center of the garden, say four or five feet above the general level; then, to avoid the expense of more iron pipe for conductors, the sand is banked up nearly to the top of the pipe; and in the top of this ridge of sand a little ditch is made with a gradual incline. This takes the water off in different directions across the garden; and with sand ridges to hold the water it is conducted between the furrows where they want it. Of course, much water is wasted by leaching through the sandy loam; but the artesian well gives such an unlimited supply from a four-inch pipe that it can waste all it wants to. Of course, when the garden shall have increased so that it becomes an object to utilize all the water, iron pipes will probably take the place of the ditches on top of the sand ridges. After having had such a visit as I did with friend King and his wife, and with Mr. and Mrs. Forester, it makes one feel like thanking God that there are such real nice people in this world of ours.

The wind was still boisterous when we undertook to climb from the landing down into the little row-boat. I was so much of an invalid after my recent sickness that I did not attempt to help very much. In fact, I was so unused to such treacherous things as boats that I needed help most of the time myself. Mr. King had charge of the management of the boat, and his wife was obliged to climb down and secure a foothold while the boat was swaying to and fro. She came near falling at one time; but instead of grasping for the secure timbers of the pier, she held tenaciously to her

little purse, or satchel, forgetting she could toss it into the boat and use both hands to steady herself. Friend Forester here broke in with:

"Look here, Mrs. King, I want you to tell us what is inside of that precious porte-monnaie that makes you cling to it so frantically, as if it were of more moment than life and death."

Without waiting for her to answer, her husband replied:

"Why, she has not any *thing* in the pocket-book except a five-cent piece. That is just the way with women-folks."

I here came to Mrs. King's rescue by remarking that I had known quite a few *men* during my time who would hang to a nickel, even though they knew it would carry them down to perdition and death, but that I was sure it was the first time in all my experience where a *woman* risked her life by holding fast to the root of all evil, and that I for one strongly resented the imputation that womankind are given to such penuriousness. Mrs. King did not vouchsafe to open that precious pocket-book and tell us what it *did* contain; but we laughed long and heartily, especially as she did *not* go over into the briny deep. Then somebody sang out that a school of porpoises was rounding the point.



Is it lawful for a man to put away his wife?—MARK 10:2.

There are unfortunate and unhappy marriages in this world of ours, as we all know; and a good many times it would seem as if the two had better separate—that is, it would seem so to *human* judgment and wisdom, especially when we attempt to use that judgment and wisdom without asking for grace from on high to guide us. I am not sure but I have, under certain very extreme circumstances, myself advised the separation of man and wife. If I did, however, I am pretty sure that my conscience troubled me about it afterward. There may be a terribly bad state of affairs where they undertake to live together; but the older I grow, the more I am convinced that it does not mend matters to seek a divorce through the courts of law. In the first place, the *precedent* is a bad one. The example is bad for the community. It is *terribly* bad for the children. It seems to wrench things asunder—things sacred and holy; and wreck and ruin often follow in a way no one could have expected. Satan's stamp and Satan's seal seem to have been left on divorces of almost every sort. Sometimes I am consulted in such matters when told that parties can not live together. My reply has been invariably—that is, before I knew the circumstances—that they would find it more trouble *still* to undertake to live separate. Now, the story I have commenced to tell you, perhaps, does not bear me out in this. If we knew all the circumstances connected with it, perhaps it would, after all.

I presume most of you are familiar with our Savior's command in regard to this whole matter. In fact, it has been read and considered again and again. This much seems to be clear: Christ Jesus gave very little encouragement, and I believe mentioned only one case in which divorce might be considered excusable; and if I am right he at least advised that man and wife who separated on that account should not marry again.

When these two parties, John and Mary, were well along in life, a circumstance occurred that perhaps helped to hasten the separation. In the town where they lived, the editor of the village paper was getting to be very intemperate. He was not only squandering all of his own means, but he had commenced, also, to waste the little property that belonged to his wife before they were married. The wife, in despair, appealed to our friend John. His connection with the bank gave him an opportunity of knowing more or less in regard to legal matters, and he was, perhaps, a very good man, under the circumstances, to advise the poor woman. Out of the best of motives he also undertook to see if something could not be done for the intemperate editor. The result was a sort of joint stock company of three—John being one, the editor one, and the editor's wife the third. In this way an intemperate man was prevented from using up his wife's property; and finally he was so far reformed that the paper began to grow, and the printing-office did a thriving business, proving a profitable investment for all three. Under the circumstances, the wife's gratitude was unbounded to John for saving not only her property, but her husband from a drunkard's grave. Before John undertook this he consulted with his wife, and had her discuss the matter fully with the editor's wife. Mary declared she was quite willing, under the circumstances, that John should enter into this praiseworthy undertaking.

Let me digress a little right here to say that such arrangements are more or less risky and dangerous. Even though John had been at the time a devout Christian, which he was not, and even though this editor's wife had been one of the very noblest and best of women, which I have reason to believe she *was*, I think we should be exceedingly careful indeed how we undertake any thing that invades domestic relations to the extent of the case mentioned above.

The poor woman, when she saw her property was saved, and her husband too, which was of a thousand times more moment, felt, as I have just said, unbounded gratitude to John. My friends, Satan is not slow to take advantage of such a state of affairs; and it seems a little strange sometimes for us to be obliged to confess that there is but a single step (often a very short step) from the noblest and best instincts of humanity down to the lowest and most deplorable. The man who had been saved from his intemperate habits did not *stay* saved. He was not saved through Christ Jesus. I do not mean to discourage friendly efforts like the one above; but the man who breaks away from any terrible sin needs *more* than human agency.

One night John remarked he would have to go to the bank and finish some urgent business. His wife objected, but he said it had to be done. When he arrived home rather late, his wife had already retired. She asked him if he had been at the bank at work. He was a little surprised at the question, but answered, and, I believe, honestly, that he had. She charged him with falsehood, and finally admitted she followed him when he left home, and saw that he did *not* go to the bank. Then he remembered that, before going to his work, he stopped in for a little chat with a particular friend. She followed him, and saw them through the window. She probably was jealous of the editor's wife at the time; and even though she did not discover that he was anywhere near the woman, she *did* discover, or, at least, claimed she did, that he was untruthful; and if he was untruthful in one thing, why shouldn't he be in another? This is a poor sort of reasoning, as all will admit; but when a woman once loses

faith in her husband she is ready for all sorts of foolish suggestions from the green-eyed monster. John declared he *had* been at his work, and she declared again he had *not*. Was not this a foolish thing to dispute about? I wonder if it occurs to you, dear friends, just now, that *you* at times have been perhaps just as inconsistent and unreasonable as were these two. They were both wrong and wicked. John was tired, and wanted to go to sleep. They had got a going, however; and the poor wife, like other daughters of Eve, could not rest without the last word—and, in fact, I fear there were several "last words." John told her again and again that she must stop and let him have his sleep or he could not get through with necessary duties that were to be performed early in the morning; and finally when she would not stop he left the room and sought a bed in another apartment. I do not know whether he got the needed rest in the other apartment or not. I can thank God, and do thank God almost every day, that I can go to sleep quickly and readily under almost all sorts of circumstances; but I am quite sure I should never have found any rest or recuperation in that other room. The only possible rest for me would have been after I had kneeled down by the bedside, my wife kneeling with me, and asked God to forgive two of his children for being bad and wicked, and to help them to do better. I think I may safely say that, before the little brief prayer would be finished, my wife's hand would be in mine, and *then* we *two* could go to sleep. 'You may say,' perhaps, I need to thank God for giving me such a wife. I quite agree with you, for I have and do often; but, my dear brother, something seems to tell me that there are very few women in this world of ours who would not go at least half way toward a reconciliation and a settlement of disputes of this sort.

But these two friends of whom I am speaking were not Christians. Certainly neither one of them was in a Christian frame of mind that night. John continued to occupy another room from that time on. Friends began to notice the trouble; and Henry, whom I mentioned in the outset of the story (who was also by this time married), came over and plead with John. He asked John to forget and forgive, and to try once more. John replied that he had forgotten and forgiven so many times that the thought of it sickened him. He did not want to try any more; but for Henry's sake he finally yielded. It turned out as the intemperate editor turned out. Without God's grace and God's blessing the same conditions produce the same results again and again. "Ye must be born again," the Savior said, and there does not seem to be any other way but the new birth through Christ Jesus.

dreary months passed for these two. Mary finally said she was going home to her father's. John agreed, and suggested that she had better stay there for all time to come. Preliminaries were arranged as to who should have the children, etc., and then she bade adieu to her husband and the children she was to leave with him.

In a very few days, however, it was whispered that the editor's wife was the cause of the separation. She heard of it, and implored John to bring his wife back again, and offered to go with him. By this time the editor was back to his old habits worse than ever, and the poor wife was sinking into an untimely grave from abuse and neglect and privation. The shock and excitement of the scandal made it almost necessary that Mary should go back, to save a life. John sent for his wife to come back. The editor, however, had got some ink-

ling of matters through his befogged intellect, and about this time woke up enough to get down on the street just drunk enough to boast before everybody that John had sent for his wife to come back because *he* had pointed a loaded pistol at his head and told him to do so. John became stubborn and ugly, and declared he would never live with the woman again, even if she came back, and telegraphed her not to come. He told me he had been so harrassed and worn out from want of peace and rest that he was about ready to commit suicide rather than to undertake to live under the same roof with that woman again. You see, Satan had got matters well in hand by this time. When he gets a man, or woman either, where they say they would rather commit suicide than to do some other thing, he is pretty nearly master. If you want to know how many suicides come about in something this way, read the daily papers. Sometimes it is divorce, desertion, and suicide *too*. Years after these events John became a Christian. He and I went over the ground together. I suggested to him what a Christian would have done under the circumstances, and we pretty nearly agreed on the matter.

Now, friends, if in this little story I have seemed to blame Mary, or if I have unconsciously told how provoking and ugly a *woman* can be if she has a mind to, I have made a mistake. If, however, I have succeeded in telling you how provoking and ugly *both* men and women can be—even husbands and wives, and fathers and mothers, when Satan is allowed to get a foothold in the family circle, then my story has performed its mission. The inmates of any home are to be *pitted* when Satan gets the upper hand. They are to be pitied exactly as if the smallpox had broken out in that house and could not be stopped. If there were no remedy, and no help for Satan's work, then indeed would this world be a sad place to live in. But, dear friends, there is a remedy and a *cure* for all troubles of this kind—even Christ Jesus who came from heaven to earth to cast out Satan. If the dear Savior is not invited into your home—if he is not one of you—be assured Satan will come, and he comes *without* invitation. Yes, even *now* he is going about as a roaring lion, and we should be helpless indeed against his wiles were it not for the Lamb of God that taketh away the sin of the world.



GARDENING UP TO MAY 1.

When I got home from Florida I think I told you our crimson clover was all right. So it was; but the severe freezing and thawing, day after day, through the latter part of March and fore part of April, has, I fear, used it up. When I saw it so green and well rooted in March, I thought it was surely safe; but now there is scarcely a root of it left, and it is much the same with our White Multiplier and American Pearl onions. This time, however, instead of putting them on the creek-bottom, where I have for years past, we put them up on the swamp in the black muck; but the muck seems to be so loose that the roots could not get hold enough. Perhaps half of our White Multiplier onions are all right, and these that stood the freezing and thawing the best are on a well-underdrained clay soil. They look pretty sick even now as I write; but as the freezing seems to be over, I think they will fetch up. I

am going to try crimson clover again, and put it in earlier. But I tell you it is a relief to take a look at the lathyrus silvestris. Why, the way that pea-looking plant sends its roots down into the ground is just wonderful. Not a single weak plant has been disturbed in the least; and yet they stood in a very exposed situation without any sort of protection. They were on our rich plant-beds, however, where the ground was spaded down a foot or more. A single tap root goes straight down. Now, if this forage is relished by stock, what a wonderful thing it will be to have such immense quantities of feed year after year, without any care or attention except to keep cutting your fodder when it is big enough! Our sacaline-plants are taking hold and growing tremendously. I do not think I ever saw a plant have more vigor—no, not even a *dock*; but it does not look to me as if it were going to be as valuable for feed as the lathyrus. The latter, you know, is one of the plants that take nitrogen from the air. By the way, we have a relative of the man who introduced the lathyrus, here in our own country—Mr. Carl Wagner, of Economy, Pa. He advertises the *genuine* lathyrus, and says there are imitations. We have purchased 500 to test beside our own. His directions for cultivating are printed in English and German. Here is the English translation that came with our plants:

TO CULTIVATE THE GROWTH OF WOOD CHICKLING VETCH, LATHYRUS SILVESTRIIS WAGNERI.

This seed is to be sown during the month of April in a well-cultivated growing garden, in rows, and placed about 12 inches apart. The bottom ground must be well dug up and turned over, and the upper crust properly manured. Should this not be the case, an artificial fertilizer may be used, so that the outgrown lathyrus seed is penetrated by the mineral gases, etc., and the many roots forced through the sand, stone, or other rough bottom containing mineral strength. In such cases the seed is not always successful in taking root, and is mostly drawn by the aid of old or mother roots during the first season. A growing garden, continuously well dug up to a sufficient depth, may serve as a propagation-bed for at least ten years, without remission.

From the middle of October to the end of April of the next year, provided the ground was not frozen, these one-year plants may be transplanted in all directions, about 12 to 14 inches apart. The bottom of the field must be dug up and well turned over, as the nutriment will then last 20 to 25 years; whereas by ordinary plowing or turning over it may not do so well. The roots of the transplanted seeds are cut smooth, and supported to a height of 8 or 10 inches, so that, when the next row is dug, the ground covers the one just passed. These seedlings thrive best when the head is imbedded about two inches in the ground. If not set in deep enough, and the heads with the neck of the roots are exposed, the seedlings perish. Wet grounds or soft soil containing stagnant water will kill, where dry, deep, sandy stone soil is successful. It is not meant to reject good soil, but it should be dry. See item on chickling vetch in the New York Staatszeitung, Feb. 11, 1893; June 10, July 15, Sept. 2, and Sept. 30.

Economy, Pa.

STRAWBERRIES UNDER GLASS.

My strawberries under glass did not succeed during the past winter as they did the winter before. When the terrible freezing weather came on while I was in Florida, it was necessary to let on so much steam to keep our dwelling warm, the strawberries were pretty well cooked; but if they attempted to ventilate, the plants were cooked at the roots and scorched on their tops. If a little greenhouse were built right over the underground passage for exhaust steam, instead of the simple hot-bed with sash, it would equalize the heat, and make it possible to raise plants.

COLD-FRAME ONION-PLANTS.

This last winter we made a larger experiment

in wintering onions under glass than ever before. Only two varieties were tested—the Prize-taker and American Pearl. The seed was sown quite thickly in the beds in September. By the time freezing weather came on we had onion-plants with bulbs about the size of the end of your finger. The sashes were put on and moved very little through the winter. To prevent the beds from becoming too hot when the sun shone out, every third or fourth sash was made of glass slats such as I have described. Besides, the dogs walked over the glass, here and there smashing out a light. I told the boys to let these occasional lights be for ventilation, even if it did kill the plants right under the opening. These onions are so hardy that a very little protection suffices; and when the severe freezing occurred in March and April, with warm sunshine in the middle of the day, the glass saved these from injury. We usually tilted the sashes, however, in the middle of the day. These onions are now, April 24, some of them, nearly as large as hens' eggs. They will make nice-looking bulbs away in advance of onions raised in any other way; and the ground was made so rich with manure that we can let them grow so close together that they almost push each other out of the ground. This sort of treatment will certainly pay, for you can almost set your own price on beautiful nice onions away ahead of anybody else. Very likely the White Multipliers would work nicely under this treatment. I presume that, in a few days, we shall have trouble by many of the large onions sending up seed-stalks, because they made part of their growth last season. To obviate this we can pull out the seed-stalk, or pull out such onions, and sell them in bunches. Of course, these cold-frame onions would be a splendid thing for onion-plants; and I think it would pay to give twice as much for them as for onion-plants raised in the greenhouse, from seed sown in February or March. To produce plants, they should be sown a great deal thicker than we have them. Another season, I think I shall use a great part of our sashes in producing cold-frame onion-plants for early market. In fact, ever since the trade has started in onion-plants we have had orders for them before they were ready; but the cold-frame would *always* be ready. In our locality, and with our average freezing weather which we have in March and April, I should say the cheapest and best way to raise spinach is in beds just such as I have described for onion-plants. No heat at all is needed for either onions or spinach, if you plant them so that they get a good start in the fall, before the sashes are put on. The spinach is ever so much nicer than any we ever get wintered in the open ground. All your sashes can be easily utilized at a season of the year when they are hardly needed for any thing else. Late frosts are making trouble with our large twice-transplanted tomato-plants. We have put them in a bed having the sides so high that the sash is quite a distance above the soil; but every night, when it looks like frost, the glass lies on top of the tomatoes, crushing down their leaves and blossoms. This does not do any particular harm unless it is cold enough to freeze through the glass. But they are growing so now that they probably would not stand it very much longer.

We are still getting 15 cts. per lb. for lettuce, or 20 cts. where it is sold in five-cent packages. Our first pie-plant brings 5 cts. a bunch, three bunches weighing a pound. Our first asparagus brings 5 cts. a bunch, eight bunches to the pound. Of course, these bunches are very small; but we aim to put all our vegetables up in five-cent bunches. As the season advances

we make the bunches heavier. For instance, the first onions raised in the greenhouse are put up in bunches of 4 oz. each. As the season advances we give three bunches to the pound, then two, and finally a bunch weighing a whole pound, for a nickle. But in order to induce people to purchase more we sell 3 five-cent bunches of any thing for 10 cts. Of course, it is some trouble to do the bunching up; but our boys use cheap rubber bands, and it greatly facilitates the work of the man on the wagon. He simply says to his customers, "Five cents for a bunch of any thing, or three bunches for a dime." In this way there is no weighing up, no discussion, no bantering. Of course, each customer is to take each bunch as it comes. He is not to pull them over nor sort out the best. But in putting them up, the boys endeavor to have the bunches average of equal value.

I wonder how many of the friends are enjoying working with plant-beds and sashes, as described in the latter part of the tomato-book. Oh! by the way, I got hold of a new item in this matter during my Florida trip. You will notice in my travels how much I said of the protection furnished to garden-stuff by planting under trees. Now, with the plant-beds I have described you do not need to fear the roots of trees robbing your plants—that is, if you have some trees in your garden that produce a valuable crop. Let the trees help themselves. Bring in your manure, and bring in water; and be sure there is enough to go round. Apple-trees trained high, so the limbs would not hit your head, would be just the thing, and in the fall of the year the foliage will protect your tomatoes from frost so that you may have several gatherings after the frost has destroyed those, where there is protection from the trees overhead. The shade of the trees is really a good thing for many kinds of plants and crops during the extreme heat of the summer. And then just think how pleasant for the wife and children to "make garden" in the shade under large leafy trees. But in this business of *high-pressure* gardening the shade-trees ought to be something that bears crops of great value. The mango-tree, of Florida, where the fruit from a single tree brought \$150, that would be just the thing. Very likely grapevines could be trained high enough to give the right amount of shade, and not interfere with the work. You see, there would be no leaves at all until hot weather comes. In fact, I have seen magnificent crops of grapes grown on vines trained overhead, so one could just reach the clusters. Of course, there are crops that need all of the sun; but there are a good many that do better without *all* of it. We have raised beautiful cabbage, celery, and tomato plants, where they were shaded a great part of the day by evergreens.

Now, when some of you have got a nice plant-garden under some tall branching shade-trees, please invite me to come and see you. Just now I am getting greatly in love with *strawberries* in our rich plant-beds. With plenty of water and plenty of manure I can make them do just what I want, even through the hottest part of summer; and if you want to raise nice strawberry-plants for sale, the plant-beds are the place to do it. If you have exhaust steam that you can run under some of your plant-beds, all the better.

The strawberry-plants I got of you last fall were so fine that several have asked me about you, as they wish to deal with so honest a shipper.

S. S. FETHEROLF, P. M.

Palestine, Ohio, April 15.

THE BEAN CROP, ETC., IN FLORIDA, IN SPITE
OF THE BLIZZARDS.

Mr. Root:—You remember the 7th of February every thing was killed. We thought it of little use to try again after being frozen out twice in one season; but one of my neighbors had 32 lbs. of seed beans on hand, which he concluded to eat to save them. I induced him to sell them to me, and I planted them Feb. 12. I have shipped 78 crates to New York, picked from this 32 lbs. planting, and shall probably get 40 more. We have a good crop of Irish potatoes, which we sell here on the river for \$2.00 a bushel. Our table is well supplied, and has been for two weeks, with cabbage, summer squash, Irish potatoes, string beans; and radishes and lettuce for the last month; so you see we do not have to wait long here, even if we do lose all by a freeze, which does not happen more than once in about ten years, and this the hardest in fifty years. H. T. GIFFORD.

Ver0, Fla., April 22.

ELECTROPOISE, OXYDONOR, ETC.

A PLEA ON THE OTHER SIDE OF THE CASE.

Bro. Root:—I see you have inserted in GLEANINGS several notes condemnatory of the Oxydonor (including it with the Electropoise). Now, may I not ask if you are not talking too fast, and perhaps condemning a thing which you may not understand because you do not see *how* it can be useful because it does not coincide with what has been used in the past. Is it so perfectly impossible that there shall be any new discoveries made in science? and is it not possible that this shall be one? Other discoveries have been ridiculed in the past, and no doubt will be in the future.

I send herewith a circular of the Oxydonor Victory. Please look it over, and decide in your mind whether you can believe that all these certificates, over 250, are either frauds, or have they been relieved or cured all by the powers of their imagination? If you had advised your sick friends to go direct to the Lord Jesus Christ, the great physician, for healing, rather than depend on Electropoise or Oxydonor, I should not have said one word more than "Amen." A. H. VAN DOREN.

Hammonton, N. J., April 19.

My good friend, I should be very glad indeed if it were possible that these people have made a new discovery. Yes, new discoveries are being made in science every day; but it is not possible that some new discovery may decide that 2 and 2 make 5, instead of the old orthodox way, 2 and 2 make 4. Another thing, you confound legitimate discovery with fraud and deceit. In regard to the 250 testimonials, it not only makes it sadder but more deplorable. Suppose these people all declared that nailing a horseshoe over a door performed these wonderful cures—would you believe it? Well, Electropoise and Oxydonor are even worse than this, for they claim to be scientific, and that they have made a discovery; whereas, it is all humbug, cheat, and fraud. These men are hypocrites. Read again what U. S. Chemist, Prof. Wiley, said on page 321 of our last issue.

And now read below the testimony of Pres. Ballantine, of Oberlin College:

Oberlin College, President's Office, Apr. 10.

Mr. A. I. Root, Medina, Ohio:—I agree with you that it is inexcusable for religious papers, or respectable papers of any kind, to advertise such frauds as Electropoise. To take the money of such advertisers is to connive at a confidence game which is all the meaner because practiced upon the sick. If I can co-operate with you in any way in awakening the public conscience it will give me satisfaction. Very gratefully and truly yours,

W. G. BALLANTINE.

It is not a difference of opinion, mind you, in this case; neither is it something these fellows

have discovered that Prof. Wiley and Pres. Ballantine know nothing about. In their circulars and their claims they have invaded the chemist's domain—have talked about taking oxygen from the air with their humbug apparatus. They evidently know too little of chemistry to realize what absurd quackery they are promulgating. In any case, they are guilty of hypocrisy and deceit. They know full well there is no meaning at all, and no science, to the jargon of their circulars. Now, mind you, this is not simply *my* assertion. All learned men and scholars of the present day are in accord with the position I have taken. They *must* stand with me, for there is no other place to stand. I leave it to you—is it probable that these pretenders have discovered something valuable and good? Do men gather grapes of thorns, or figs of thistles? Since you have undertaken to defend these things, I wish you would turn to page 274, where I quoted from the Oxydonor circular, and answer me as to whether there is sense or science in what I quoted.

I thank you for your concluding words. You are aware, friend V., that I do, in every issue of our journal, exhort all mankind to turn to the Lord Christ Jesus; but should I be called upon to stop a thief in the streets, or to arrest a midnight assassin, I should hardly think it worth while to exhort the thief or assassin, in the same breath, to turn to Christ. Should I not, rather, call upon the officers of the law to arrest him and put him safely in prison, and then sit down by his side and exhort him to lead a different life?

I have looked the Oxydonor circular, which you were so kind as to send, all over, and I confess the testimonials are astounding; but, dear friends, have you not noticed testimonials are now floating for almost every thing? And they are getting men with "Rev." attached to their names to indorse it. If you go among the heathen you could, no doubt, get thousands of testimonials as to the efficacy of their gods, made of wood and stone; but it would not, in your opinion, help your faith in those gods; on the contrary, it would sink your faith in those who were so foolish. If Oxydonor and Electropoise shall be the means of waking people up to the absurdity of this whole matter of being cured by every new thing that turns up, no matter whether it has sense or science either to back it, then I grant you some good will be done. If these men have made a discovery, why do they not come forth boldly, and proclaim it to the scientific world? They *dare* not do it. I do not think I have ever met a man who had the cheek or hardihood to stand up before intelligent and educated people, and attempt to palm off such ridiculous stuff for truth or sense. I should pity a man who would even attempt it.

On page 333 we gave the names of four religious papers that would not accept advertisements of Electropoise. There was a fifth one in this group—the *Outlook*; but before we went to press a late copy was received containing a large advertisement of the thing. Of course, the *Outlook* was taken out. As we go to press we find the following in *Electricity* for April 24:

For a journal to assist in the promotion of a gross swindle, and to accept the money of a swindler as a consideration for that assistance, precludes the possibility of such a journal, or the clergyman conducting it, doing successful missionary work among those who know the facts, and there are thousands. We may add that we have the names and addresses of six members of Plymouth congregation who state that they were humbugged out of the price of an Electropoise through seeing it advertised in the *Outlook* some months ago.

I will add here that the editor of the *Outlook*

is the Rev. Lyman Abbott, now pastor of Plymouth Church, Brooklyn, N. Y., the pulpit formerly occupied by the late Henry Ward Beecher.

A. I. R.

TOBACCO AND SCHOOLTEACHERS, ETC.

Your little extract from the *Rural New-Yorker*, in the issue for Apr. 15, induces me to relate the following: When I read that article in the *Rural* I just wanted to give the editor a good old-fashioned handshake and tell him that I had once been in just that predicament. When I began taking GLEANINGS, in 1887, I did not like the tobacco articles, and I fancied A. I. Root was meddling with something that was not in his line. I was teaching, and was using tobacco on the sly, for you see my guilty conscience would not let me be bold about it. By and by, when the State made a law that the evil effects of alcohol and narcotics should be taught in our common schools, our examiners went one step further and would not grant a certificate to any one who used tobacco. This question was asked both lady and gentleman applicants at first; but at present males only are put through the test. You see, it was hardly in harmony with our progressive age for an examiner to look a fair young lady in the face and say, "Do you use tobacco?" Imagine the embarrassment for both. Well, when the examiners made the new ruling I didn't like to give up teaching, so I quit chewing, and resolved to smoke occasionally, generally in the evening, just before retiring. Now, the funny thing about this is, I had imagined I couldn't live without my quid, and I am surprised now to look back and see how soon it was forgotten; but about one night every month or so I dream of having my quid in my mouth; and while the dream lasts I suffer the old anguish and torment to be loose from my old bondage, and I tell you it is a relief to awake and find "it's all a dream."

The smoking was continued till a year ago, when a young lady became an equal partner. The smoking seemed to poison my system to such an extent that, during the night, so much of it was given off that she awakened every morning with a heavy headache. The smoking was stopped, and to-day I am free from a slavery that had me once in an iron grasp. Last winter one of my boys said, "Teacher, do you use tobacco?" I pleasantly replied, "I am free from the habit; and, God helping me, I am ever going to remain so." The supreme satisfaction of being able to say conscientiously what I did to him rewarded my effort. "For surely there is no excellence without great labor."

DR. J. Q. MULFORD.

Lebanon, O., April 19.

BEST ON EARTH.
WILLIAMS AUTOMATIC REVERSIBLE
HONEY - EXTRACTOR.

Perfect in principle and workings. Here is what the veteran bee-keeper, N. E. France, of Platteville, Wis., says of it: "I consider the Williams Automatic Reversible Extractor head and shoulders above any I have ever used, and, furthermore, consider it the BEST on the market." Mr. France produces extracted honey by the carload, so he is good authority on extractors. For price list No. 1 of Extractors, choice Italian Bees, Queens, etc., address

VAN ALLEN & WILLIAMS, Barnum, Wis.

In responding to this advertisement mention GLEANINGS.

100 Breeding Queens.



We have got 100 very FINE SELECT (breeding) Gray Carniolan queens that we can ship by return mail for \$3.50 each. Don't fail to send for our free descriptive price list of the Gray Carniolans and golden Italians.

F. A. Lockhart & Co., Lake George, N. Y.

In responding to this advertisement mention GLEANINGS.

GOLDEN QUEENS

Bred for business. Untested, May, 70 cts. each; 3 for \$2.00. Tested, \$1.00 each. Fine breeders, \$2.00 each extra. Select straight 5-banded breeding-queens, \$4.00 each. To all new customers one GOLDEN QUEEN for 50 cts. Satisfaction and safe arrival guaranteed.

E. A. SEELEY, Bloomer, Ark.

P. O. Money Order office, Lavaca, Ark. 7-20
In responding to this advertisement mention GLEANINGS.

Eggs from pure B. P. Rocks, cheap, for hatching or incubator. Cards cheerfully answered.
MRS. L. C. AXTELL, Roseville, Illinois.

- Hives,
- Foundation,
- Sections,
- Bees,
- Queens,
- Or
- Any
- Thing
- A
- Bee-keeper
- Needs.

2-frame nucleus with untested queen	\$2 50
3-frame nucleus with untested queen	3 25
Ready to ship. Discount on quantities.	
40,000 2-lb. 4 3/4 x 4 3/4 x 1 1/2 sections, per 1000	1 50
40,000 2-lb. 4 3/4 x 4 3/4 x 1 1/8 sections, per 1000	1 35
Every thing shipped from this city. Catalog free.	

I. J. STRINGHAM, 105 Park Place, N. Y. City.

In responding to this advertisement mention GLEANINGS.

H·O·N·E·Y!

If we would be successful in the production of honey it is of vital importance

that our queens be first-class. After an extended experience with the different races of bees brought to this country, I am led to believe, all things considered, that these direct from Italy have never been improved upon. Large yellow prolific queens from imported mothers, mated to drones of imported stock from a different source, securing a direct cross. Untested, ready May 25, 75c; 6, \$4.25; 12 for \$8.00. Select untested, \$1.00. No disease.

L. H. ROBEY, Worthington, W. Va.

In responding to this advertisement mention GLEANINGS.

Must be Sold.

75 Langstroth and Simplicity hives made up and painted, mostly new; supers and wide frames, 3000 sections, Simplicity smokers, all new; 100 straight combs, nice and clean. Send on your offers for part or whole.

E. Y. PERKINS, Lenox, Iowa.

Please mention this paper.

.....HONEY-MAKERS

Are a strain of Italian bees that we have produced by years of careful breeding. Queens will be ready May 15. Tested queens in May, \$2.00; untested, \$1.00; half-dozen, \$5.00; tested queens in June, \$1.25; untested, 75c; half-dozen, \$4.00. Please state in your order whether imported or golden queens are wanted.

LEININGER BROS., Ft. JENNINGS, O.

In responding to this advertisement mention GLEANINGS.

Still in the Lead!

Hilton's White T Supers,
Chaff Polished Foundation,
Hives, Sections, Smokers,
and every thing needed in the apiary.

Send for 1895 catalog.

GEO. E. HILTON, = = Fremont, Mich.
Please mention this paper.

Best on Earth.



Bingham's five sizes of bee-smokers range in price from 50c to \$1.75 per mail, and are the lowest-priced of any in the market, according to size. Bingham Smokers and Knives are made only by the inventor, and can be depended on every time, as they have been for 16 years as the best that could be made or used.



Mention GLEANINGS, and send for circular of prices.

T. F. BINGHAM, Abronja, Mich.

Please mention this paper

Control Your Swarms, Requeen, Etc.



Send 25c for samples of West's Patent Spiral wire Queen-Cell Protectors, and Pat. Spiral Queen Hatching and Introducing Cage, also best Bee-Escape, with circular explaining. Twelve Cell-protectors, 60c; 100, \$3. 12 cages, \$1; 100, \$5, by mail. Circular free. Address N. D. WEST, Middleburgh, Scho. Co., N. Y.

Sold also by all the leading supply-dealers.

In responding to this advertisement mention GLEANINGS.

Golden Queens From Texas.

My queens are bred for business, as well as for beauty and gentleness. Safe arrival and reasonable satisfaction guaranteed. Untested, \$1.00; tested, \$1.50.

Write for price list.

5-16ei

J. D. GIVENS, Lisbon, Texas. Box 3.

In responding to this advertisement mention GLEANINGS

Dovetailed Hives.

Sections, Extractors, Smokers, and every thing a Bee-keeper wants. **Honest Goods at Close Honest Prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

Alley's Combined
Description and price
list now ready.

HENRY ALLEY,
Wenham, Mass.

Please mention this paper.

Queen-Trap and
Swarm-Catcher.

A Tested Queen Free!



Pure Italians. To every one buying 1½ doz. untested queens I will give a tested one free. Untested, 60c; tested, \$1.00; selected tested, \$1.50; breeders, \$3.00.

STEWART BROS., Sparta, Tenn.

In responding to this advertisement mention GLEANINGS

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-Frames.



Thin Flat - Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,

12tfdb Sole Manufacturers,
Sprout Brook, Montgomery Co., N. Y.

In responding to this advertisement mention GLEANINGS.

Sweetheart.

A Regular Sugar Lump.

LEADS Early, Large, Handsome, Good Ship-
ALL per, Best Quality. Send for circular
WATER- giving important facts to growers and
MELONS shippers, with comparative sales and
ON opinions of many commission men in
THE leading northern markets.

Seed, Packet, 10 cts.; lb., \$1.50.

ALBERT WITTENMYER,

Originator, Grower, and Shipper,

Emison, Knox Co., Ind.

In responding to this advertisement mention GLEANINGS.



DON'T MONKEY NOW.

Send for our 36-page catalog free.

Root Co.'s Supplies kept in stock.

In order to reduce our stock for the next two months will give large discounts. Write us what you need. Get our prices

JNO. NEBEL & SON, High Hill, Mo.

Please mention this paper

The New Craig Seedling Potato.

For full description of this Potato, see page 959 of this journal for Dec. 15, 1894. Prices: 1 lb by mail, postpaid, 25 cts.; ¼ peck, by freight or express, \$1.00; peck, \$1.75; ½ bushel, \$3.00; bushel, \$5.00; barrel of 11 pecks, \$12.50. The above prices will hold good as long as our stock lasts. All orders by mail will be filled as soon as received. Orders by express will be shipped at once unless ordered otherwise. All orders for potatoes by freight will be filled April 1, or soon after that time, unless directions are given to ship at an earlier date. In this latter case I do not assume responsibility for loss in freezing; but where it is desirable to ship earlier, and customers have bad luck, I expect to help them out so far as I can consistently. In regard to my responsibility I would refer you to A. I. Root. In fact, where it is more convenient you can order potatoes of the A. I. Root Co., instead of sending your orders to me.

GEO. E. CRAIG, Zimmer, Franklin Co., O.

In responding to this advertisement mention GLEANINGS

World's Fair Medal

Awarded my **Foundation**. Send for **free samples**. Dealers, write for wholesale prices. Root's new **Polished Sections** and other goods at his prices. **Free Illustrated Price List** of every thing needed in the apiary. **M. H. Hunt.**

Bell Branch, Mich.

Please mention this paper.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. **PAGE & LYON MFG. CO.,**
8tfdb New London, Wis.

Please mention GLEANINGS.

21-8db

THE SOUTHERN Home of the Honey-Bee

Is ready for your orders for 3 or 5 banded queens, as good as the best, guaranteed free from paralysis. Warranted queens, 75c each; tested, \$1.00. After June 1, warranted, 50c each; tested, 75c each. Good breeders, \$2.00. Straight 5-banded, or "faultless," queens, \$2.50 each. Special prices on lots, also to the queen-dealer. Safe delivery and satisfaction guaranteed. Circular free. Address

HUFSTEDLER BROS., Clarksville, Tex.

☞ In responding to this advertisement mention GLEANINGS.

WHY NOT

Send your orders to W. H. Laws for Italian Queens?

THE BEST IS THE CHEAPEST.

For beauty and business you can't beat them. The leading bee-keepers of the U. S. are my customers, and all praise them. I breed either the Golden or Leather colored strains.

PRICES REDUCED

To suit the times. Fine breeders always on hand, \$2 to \$3. Untested, 75c; 3 for \$2. Tested, \$1; 6 for \$5. Address

W. H. LAWS, LAVACA, ARK.

Please mention GLEANINGS.

Apiary for Sale. ☞

☞ ☞ ☞ \$800.00.

Eight hundred dollars in cash will purchase one of the best appointed apiaries in Canada. One hundred colonies; good location. Every thing first-class. The best of reasons for selling. If you mean business write me for particulars, or come and see for yourself.

F. A. CEMMELL,

Assistant Foul-Brood Inspector,

Stratford, Ont.

Mention this paper.

MUTH'S HONEY-EXTRACTOR, SQUARE GLASS HONEY-JARS.

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "Practical Hints" will be mailed for 10c in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.

☞ In responding to this advertisement mention GLEANINGS.

Given Foundation

Ready for Delivery.

We are now making, as previously announced, Given foundation on rolls. We can supply the product at the same price as the regular wax. Customers who desire a small quantity to experiment with can have a little added to the regular foundation if they will so specify in their orders. We neither indorse nor condemn it, but hope it will be tried sufficiently to test its merits. The surplus Given has extra thin bases. The A. I. Root Co., Medina, O.

Queens, Either 3 or 5 Banded.

After May 1st, 75c; 6 for \$4.25. Nuclei cheap. Also poultry eggs for hatching, 50c up. Send for catalogue. Send your orders now. Can please you.

CHAS. H. THIES, Steeleville, Ill.

Eggs for Hatching

From Prize - Winning Fowls.
50c and \$1.00 per 15.

Send for circular.

AUGUST GOETZE & SON,
3822 Wood St., Wheeling, W. Va.

Please mention this paper.

Best ~ Goods

At lowest prices are what we are all after. The quality of Cary's goods has never been questioned. His X X white thin foundation and polished one-piece sections are the finest on the market. His bees and queens are from the best strains, and reared and shipped in the way that long years of experience have shown to be the best.

He has the largest stock of BEE-KEEPERS' SUPPLIES in New England; and as to prices you have only to send for a catalog and compare them with those of other dealers.

To those living in the East, there is the still further consideration of low freight rates. Address

W. W. CARY,

COLRAIN,

MASS.

☞ In responding to this advertisement mention GLEANINGS.

W. O. Victor, of Wharton, Tex., took

45,000 Lbs. of Honey in 1894.

He offers Italian Queens—good, old-style honey-queens—untested, first order, to any address, at 50c each. Also bees in any quantity; 450 colonies to draw from. Root's goods constantly in stock. Prices to suit the times. Buy near home, and save freight.

☞ In responding to this advertisement mention GLEANINGS.

«MONEY-MAKERS»

Are a strain of business Italians that winter in the cold North, and are ready for business, with a bushel of bees, when the flowers bloom. They are gentle and industrious. Queens warranted purely in June. Each, \$1.00; six, \$5.00; doz., \$9.00. Safe arrival and satisfaction guaranteed. Never had any disease.

Address E. F. QUIGLEY, UNIONVILLE, MO.

Please mention this paper.

ITALIAN BEES AND QUEENS.

Ready in May. Queens, \$1.00. Bees by the pound, \$1.00. One-frame nucleus with queen, \$2.00; two frames, \$2.50. Also Barred

Plymouth Rock eggs for setting, \$1.00 per 15.

6-15c

MRS. A. A. SIMPSON, SWARTS, PA.

☞ In responding to this advertisement mention GLEANINGS.

Eggs From 8 leading varieties of fowls, including Imperial Pekin Ducks. Send for descriptive list to J. S. MASON, Medina, O.

In writing advertisers mention this paper.

BEGINNERS.

Beginners should have a copy of the Amateur Bee-keeper, a 70-page book by Prof. J. W. Rouse. Price 25 cents; if sent by mail, 28c. The little book and the Progressive Bee-keeper (a live progressive 28-page monthly journal) one year, 65c. Address any first-class dealer, or

LEAHY MFG. CO., HIGGINSVILLE, MO.

☞ In responding to this advertisement mention GLEANINGS.



MAPLE SYRUP.

We have not been able to secure enough maple sugar this spring to fill our orders; but we have an oversupply of syrup which we offer at \$1.00 per gal., or \$9.00 for 10 gallons. It is of unusually fine quality, and this price is lower than heretofore quoted.

CARLOAD SHIPMENTS.

During the past month we have shipped a carload to G. G. Wickson & Co., Los Angeles; another to the same firm at San Francisco; one to Barteldes & Co., Denver, Colo.; one to W. K. Ball, Reno, Nev.; and a car of hives and cantaloupe-crates to Rocky Ford, Colo. As we go to press we are also preparing a second car of export orders, the larger part of which is for Hebblewhite & Co., of Sydney, Australia. We are also shipping a carload to Buell Lamberson, the successor of F. L. Posson & Son, at Portland, Ore.

BEESWAX MARKET.

We find that, since the first of Jan., 1895, we have bought over twelve tons of beeswax, and we now have a pretty good stock on hand. At the rate foundation is going out we shall need it all and more. With the opening of spring the offerings of wax in the principal markets are getting to be more plentiful, and we do not look for any higher prices. The mortality of bees in many localities the past winter, no doubt serves to increase the supply of wax. Until further notice we will pay 28c cash, 31 in trade, for average wax delivered here. We feared that it might be necessary to advance the price of foundation again. While we have made an advance in the wholesale price during the past month, we have not advanced the retail price, and trust it may not be necessary during the remainder of the season to do so.

REVISED LIST OF OLD-STOCK SECTIONS.

Quite a number of sizes of old-stock sections offered a month ago have been sold. The revised list is as follows; and the price while they last is \$2.20 per 1000; 3000 for \$6.00; 5000 for \$9.00, or 10,000 for \$16.00.

80,000	4 1/4 x 4 1/4 x 1 1/2,	open top and bottom, extra pol'd.
12,000	" "	" " " " open four sides.
7,000	" "	" " " " x 1 to ft., closed top.
2,000	" "	" " " " " " open four sides.
4,000	" "	" " " " " " x 1 1/2 closed top.
3,000	" "	" " " " " " open four sides.
8,000	" "	" " " " " " x 1 1/2 open 4 sides.
35,000	" "	" " " " " " open top, new-stock cream.
22,000	" "	" " " " " " 2 cream, open four sides.
22,000	" "	" " " " " " x 2, cream, open top, new stock.

To those who can use 1 1/2-inch sections, the above is a special bargain, as they are polished, and first-class in every respect; but we have too many of that width, and desire to reduce our stock.

AGENCY AT PORTLAND, ORE.

Owing to difficulties in the corporation of F. L. Posson & Son, at Portland, Ore., a receiver was appointed early in February. About a month ago Buell Lamberson bought the business of the former company, and came east to complete arrangements for the agencies formerly held by Posson & Son. He spent two days here at Medina, and we have closed a contract with him for the sale of our goods in Oregon and Washington, and are shipping an assorted car to replenish the depleted stock.

Mr. Lamberson is a man of good business ability, with considerable experience, having been fifteen years in Portland, where he is quite well and favorably known, especially in the hardware trade. He retains five of Messrs. Posson & Sons' principal clerks, who have a knowledge of the requirements of trade in our line, so that we can cheerfully recommend the new firm to those in need of bee-keepers' supplies in the Northwest.

THE GAULT RASPBERRY.

We have still a good supply of the Gault raspberry, although the demand has been enormous for them during the past ten days. Remember, the

price at the nurseryman's is 50 cts. each; but any regular subscriber of GLEANINGS—that is, somebody who has paid up or expects to pay up soon—may have one plant postpaid by mail for only 25 cts. Any rich spot in the garden, or even a corner not more than a yard square somewhere in the doorway, will give you room for one of these beautiful plants. If you want to see it do its best, I would advise you to dig down deep and make the ground rich. Have it where you can water it when needed, if the weather is very dry. No plant can furnish the enormous quantity of juicy fruit that this one does, without the wherewith in the shape of food and drink. Besides getting the fruit, you can get a dozen more plants in the fall that will, very likely, be worth 25 cts. each a year from now.

DWARF ROCKY MOUNTAIN CHERRY.

A year ago I purchased three of these of Storrs & Harrison, of Painesville, O., for 50c apiece. They seemed very hardy, and made quite a good growth last season. This morning I was agreeably surprised to find that one of the three, although less than 2 1/2 feet high, is covered with blossom-buds. Now, even if the fruit should not be quite equal to the advertisement, I am well satisfied with my investment, to get a plant so strong and thrifty that it will be full of bloom at one year from planting. The catalog tells us, "the size averages somewhat larger than the English morillo. Its flavor is similar to that of sweet cherries."

LATHYRUS, AGAIN.

To-day, April 26, we are taking up our plants and moving them to the field. I was astonished to see the nitrogen-nodules strung along on the little rootlets, like beads on a cord. It is now satisfactorily settled that all leguminous plants—peas, clover, etc., that produce these nodules or little white knobs the size of a pinhead on their roots, have the faculty of taking nitrogen from the atmosphere. That is why clover is worth more than any other plant to plow under. At the Experiment Station in Florida they showed me these nodules on their leguminous plants. Well, I never saw any thing like the number on our lathyrus. The roots go down so deep that my stalwart friend "Ben" said it was too much work to try to dig them without breaking the roots off. At its present stage, with the foliage only a few inches in height, I am sure cows and horses will take it as readily as they will any of our clovers. When it gets to be tall and strong it may be different. If you wish to see one of these plants, foliage and all, we will mail you one for 5 cts., or 10 of them for 25 cts. With such a root as they have, I do not know how the plant can fail to grow.

The wonderful power this lathyrus possesses to penetrate a hard and impervious subsoil was shown in digging up a plant an hour ago, that had forced its root absolutely through a piece of partially rotten board that was down in the plant-bed. The root came through on the other side, and went several inches beyond the board; but it was so firmly fastened that the bit of board was carried along and put out with the plant. The roots invariably go straight down; and after they are 6 months old they will, without doubt, be proof against drouth to dry up the plant, or against the effects of frost to heave it out in winter.

HUBBARD SQUASHES.

Hubbard squash has sold, even at wholesale, for from 2 to 2 1/2 cts. per lb. during most of last winter. We ourselves sent to Cleveland again and again, for great big solid Hubbard squash, paying 2 1/2 cts. per lb., or at the rate of fifty dollars per ton; and our Medina people paid from 3 1/2 to 4 cts., without a bit of grumbling. Away down in Florida, northern-grown Hubbard squashes sold for 5 cts. per lb. Why, it is ridiculous—half a dollar for a fair-sized Hubbard squash! What ails the farmers? Of course, it is a little bit of science to keep them from frost and decay away on into January and February. But anybody can do it if he wants to bad enough. Well, Hubbard squash seed is now quoted in the catalogs all the way from 60 to 80 cts. per lb. We offer it in our price list at 50 cts. per lb.; and farmers and gardeners pay these prices for seed almost every year. When we bought those great Hubbard squashes in Cleveland for 2 1/2 cts. per lb., I told the man on the wagon he might sell them a cent a pound cheaper if the purchaser would give us back all the seeds; and in this way we got quite

a lot of very choice stock. Just recently one of our bee-keeping friends offered me a big lot of Hubbard squash seed. I did not want so much, but I made him an offer for it. Now, this seed is not cleaned so as to look exactly as nice and white as that we get from seedsmen; but I think it will grow just exactly as well. He is a squash-grower himself, and says he is going to plant largely from the very same lot of seed he sent us; and if you want some of this seed, you may have it at 40 cts. per lb.; 5 lbs. at 35 cts. per lb.; 10 lbs. or over, 30 cts. per lb. If wanted by mail, add 10 cts. per lb. for postage and packing. As there is no particular hurry about getting the seed into the ground, if you choose you can order a five-cent package for sample, before you purchase largely. By the way, Hubbard squash can be put in between a great variety of crops that come off early in the season. Our neighbors in the Harrisville swamp plant Hubbard squash between their seed-onions; and as soon as the seed is ripe enough to gather, the ground is cleared off, and the squashes have the whole field. You can do the same by putting them among your early potatoes, early celery, sweet corn, and ever so many other things. Very likely they may not sell for \$50.00 a ton next year; but there is money in Hubbard squashes at even \$20.00 a ton, or less.

SEED POTATOES.

These are all gone except a few barrels of second-size Freemans in excellent condition; peck, 40 cts.; one bushel, \$1.25; one barrel, \$3.00. Also four or five barrels of Rural New-Yorker, a few Lee's Favorite and Early Ohio, and about 50 bushels of Monroe Seedling, all first size. We can still furnish the Craig Seedling, and probably shall have some of them left during the month of May. By the first of June, however, we expect to plant every thing not sold.

We have a nice lot of Mammoth Russian sunflower seed that we can furnish at 8 cts. per lb.; 5 lbs. or over, 6 cts. per lb.; 10 lbs. or over, only 5 cts. If wanted by mail, add 10 cts. per lb. for postage and packing.

KIND WORDS FROM OUR CUSTOMERS.

FREEMAN-POTATO REPORT.

Although it was a poor season for potatoes, I raised 32 lbs. of very nice potatoes from the one pound I got of you. JOHN D. WISE.
Camden, Ind., Jan. 26.

I sent you Oxydonor circular, and now ad't in the *Endeavorer*, that you may place it with Electropoise. Thanks for your exposé of frauds. Go for the religious papers that are leagued with Satan to cheat their patrons and lessen their own influence for good. Our own New York *Christian Advocate* refers to Electropoise as fraudulent. Oh for moral stamina in pulpit and press to kick the Devil wherever he is found! Oh for a Christian manhood that confers not with flesh and blood, but stands for the right, without regard to consequences.

Philipsburg, Pa., Feb. 19.

JOHN D. GILL.

I enjoy very much your writings on your Florida trip. I lose about a third of my bees, but my neighbors lose all. Oh, yes! what is the matter with Bro. Rambler, on page 166—high hat, stand-up collar, and store clothes from fire down town? Hah! I often feel very sorry for him, living alone in this world.

I hope you will not stop your Scripture talk. In fact, every thing in GLEANINGS is so interesting to me that, when I take it up, I can hardly lay it down until I have read it through. D. N. RITCHIEY.

Blacklick, O., March 30.

KIND WORDS FROM A QUAKER.

A. I. Root:—A few years ago I read in GLEANINGS thy plan for warding off sick-headache. I was so much pleased with it that I determined to write at some future time, thanking thee for the manliness to publish such an article—feeling sure that it was a pure and noble philanthropy which prompted it. To what extent thy readers will avail themselves of the information contained therein given, I do not know—I fear not much. People like to be humbugged. But that is not thy fault; and if the publica-

tion of such principles as given in the article in question are not directly beneficial to a large number of people, it will at least do much toward educating the people to a reform in medicine, which must come through an imperative demand from the people and not through the schools of medicine of their own volition; because, when men get both honor and emolument, with little labor, they will not "kill the goose that lays the golden egg."

I will say, concerning thy treatment for prevention of sick-headache and other forms of disease as well, "that ought ye to have done, and not leave the other undone." Give the patient hot water to drink (I mean as hot as can be used comfortably)—hot-water baths (or, better, vapor baths), proper food and exercise, in addition to thy prescribed course, and we can cure most forms of disease that are curable, and they are nearly all curable.

I myself was educated in the physio-medical ("steak doctor") faith. We are like the old toper. He said, "Ever since the flood, water tastes of drowned sinners. I always put a little su'thin' in mine." We always "put a little su'thin' in" our hot water; but water in its various states is one of nature's best. I have no fight with the hydrotherapeutic (or water-cure) system; but I detest the poison and humbugging system.

I thank thee for being a man with the courage of his convictions. There are more of that stripe needed. There are many lines on which people need to be educated. Just now we have started in a wrong direction—I mean military education in school and church. The National W. C. T. U. has 46 departments of education and training organized, and military is not one of them. I have a sneaking kind of idea that woman suffrage and equal rights is one of the most important if not the most important of the 46. PAUL TOMLINSON, M. D.

Cedarville, O., Dec. 10.

Carniolans Imported, \$5 each.

Bred in 1894 at the most elevated point among the Carnic Alps where bees are kept. Untested daughters of these, \$1 each; 12 for \$10. Tested daughters producing gray bees, \$2 each; 12 for \$18.

MRS. FRANK BENTON,

"The Carniolan Apiaries,"

Charlton Heights, Md.

In responding to this advertisement mention GLEANINGS.

Cheap Bees

For prices address

For Sale, Nuclei or pounds.

See article on page 171,

March 1st GLEANINGS.

T. P. ANDREWS,

Farina, Fay, Co., Illinois.

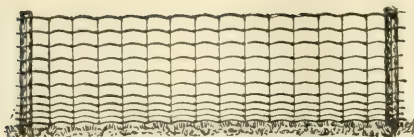
Bee=Supplies for Sale.

I offer for sale the following articles, Packed for Shipment, F. O. B., except made-up hive-bodies and supers ready for use, which are not convenient to box or ship:

87 Heddon's slatted honey-boards, each	08
50 Oil-cloth covers for supers, each	03
800 No. 1 Snow-white 4¼x4¼x2 in. sections, open 2 sides, per 1000	\$2 00
2800 No. 1 Snow-white 4¼x4¼x1½ sections, open 2 sides, per 1000	2 00
1000 Wood separators, per 100	15
10 Simplicity bodies with 2½ in. covers and bottom-boards, in the flat, each	20
90 T supers with T and L tins, in the flat, each	10
300 Simplicity frames, in the flat, per 100	50
Lot of L frames with V-groove top-bars, in the flat, per 100	50
Lot of T tins, per 100	50
Lot of wood division-boards, made up and in the flat, each	03
30 Queen-excluding sheets, zinc, plain, each	10
38 Simplicity bodies, with tops, made up, second hand, each	20
39 Bodies with 6-in. and 10-in. tops, telescopic, each	20
105 T Supers filled with sections and foundation, ready for hives, each	25
All these fixtures and hives for L 10-frame hives.	

J. M. AKERS, Smithville, Mo.

In responding to this advertisement mention GLEANINGS.



A NEW TALKING MACHINE

is the latest invention, and it differs from the phonograph in this: instead of merely repeating what is said to it, this machine takes both sides of the fence question. It gives straight wire a fair show against **coiled springs**, convinces the most skeptical that expansion and contraction **must** be provided for, and nothing but abundant **elasticity** will do it. Send for particulars.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

In responding to this advertisement mention GLEANINGS.

Second-Hand Bicycles Cheap.



We have one ladies' Victoria, last year's model, made by the Overman Wheel Company, that has been used but little, and cost last year \$125.00, that we will sell for \$75. We also have one ladies' Monarch, last year's model, for \$60. Also one gent's second-hand Monarch, 30-in. wheels, in first-class running order. Price, \$50.00. Reason for selling cheap is to get new '95 mounts. Will take honey or wax in payment. Write what you have, sending samples, and we will give you further description of the wheels.

THE A. I. ROOT CO., Medina, Ohio.

WOVEN WIRE FENCE

Horse high, built strong, pig and chicken tight. Make it yourself for **13 to 20 cents** a rod. 50 styles. A man and boy can make 40 to 60 rods a day. catalog free. **KITSELMAN BROS., Ridgeville, Ind.**



ONE MAN WITH THE UNION COMBINATION SAW

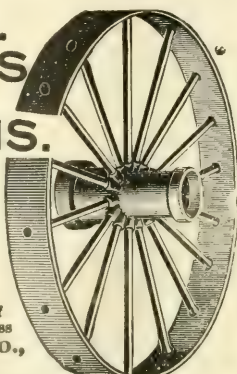
Can do the work of four men using hand tools, in Ripping, Cutting off, Mitering, Rabbing, Grooving, Gaining, Dadoing, Edging-up, Jointing Stuff, etc Full Line of Foot and Hand Power Machinery. Sold on Trial. Catalog Free. 1-24ci

SENECA FALLS MFG. CO.,
44 Water St., Seneca Falls, N.Y.

In responding to this advertisement mention GLEANINGS.

METAL WHEELS for your WAGONS.

Any size you want, 20 to 56 in high. Tires 1 to 8 in wide—hubs to fit any axle. **Saves Cost** many times in a season to have set of low wheels to fit your wagon for hauling grain, fodder, manure, bogs, &c. No resetting of tires. Catlg free. Address **EMPIRE MFG. CO., Quincy, Ill.**



In responding to this advertisement mention GLEANINGS.

Promptness is What Counts.

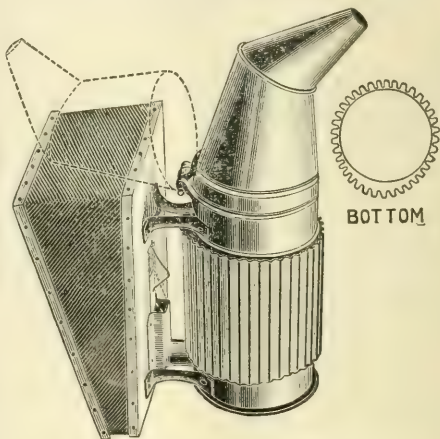
Honey-jars, Shipping-cases, and every thing that bee-keepers use. **Root's Goods at Root's Prices, and the Best Shipping-point in the Country.** Dealers in Honey and Beeswax. Catalog free.

WALTER S. POWDER,
162 Massachusetts Ave., Indianapolis, Ind.
Please mention this paper.



Crane Smoker 1895 Pattern.

This excellent smoker was introduced some two years ago, since which time it has worked itself rapidly into popular favor.



Patented March 12, 1895.

Its Distinctive Feature is the Crane Valve, by which the full force of the bellows is secured without waste, and by which also smoke is prevented absolutely from going into the bellows.

The Legs are of Skeleton Malleable Iron, contracted at the feet so as to be out of the way of the fingers in handling, and are secured to the bellows by bolts instead of screws.

The Shield is of Light Corrugated Tin, and bags next to the bellows, thus giving ample protection from heat.

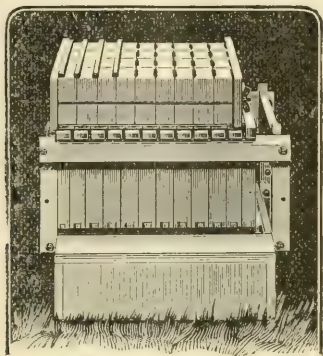
The Cone Top easily tilts back for replenishing the smoker, and is secured by a malleable-iron hinge, the working parts of which are milled so as to insure accurate adjustment to the stove or cup.

As to Fuel, it will burn any thing, including Soft Coal, Stovewood, Planer-shavings; and it makes no difference how much the latter may be crammed down in the cup, there will be the same strong blast as before.

Price, 3½-inch barrel, \$1.85, post-paid; or \$1.50 by fgt. or exp.

The A. I. Root Company,
Medina, Ohio.

THE Aspinwall Hive



THE HIVE FOR BEES.
THE HIVE FOR BEE-KEEPERS.

Aspinwall Manufacturing Co.,
Jackson, Mich.

(In response) ADV. GLEANINGS

Notice!

We beg to announce that we have completed arrangements with the Porters whereby we secure for this country the control of the sale of that very excellent and almost indispensable implement,

The Porter Bee-Escape.

It will be manufactured by the Porters, as formerly, but write to us for prices in both large and small quantities.

The A. I. Root Co., Medina, O.

Your Orders

for untested Italian queens will be promptly filled by return mail. These queens are carefully reared from fine stock, are large, healthy, and prolific. 75c each; \$8.00 per dozen. Tested, \$1.00 each.

J. W. K. SHAW & CO.,

Iberia Par.

Loreauville, La.

(In response to this advertisement mention GLEANINGS)

Bee-supplies Cheap! For prices write W. D. SOPER & SON, Box 565, Jackson, Mich.

BEE-KEEPERS' SUPPLIES FOR 1895.

Such as Dovetailed Hives, Sections, Comb Foundation, Extractors, and every thing else used by a bee-keeper. All late improved goods. Immense stock. Goods sold at wholesale and retail. Write for our

DISCOUNTS FOR EARLY ORDERS.

Alsike clover and Japanese buckwheat furnished at lowest market price.

Address **JOSEPH NYSEWANDER, Des Moines, Iowa.**
In writing advertisers please mention this paper

"GENTLEMEN: Regarding prospects for the coming year, would say, we hope to double our last year's output of Aermotors, or, at least, as we have done in the past, sell twenty-four out of every twenty-five windmills that are sold. Since commencing the sale in 1893, WE HAVE SOLD ABOUT

500 AERMOTORS

We do not attribute this fairly good record entirely to our efforts, but to the superiority of the goods which you make. BURRELL & DAVIS, Urbana, Ill., February 13, 1895."

GENTLEMEN: We bought and put up Aermotor No. 2, and out of the first fifty which you made we had thirteen. Since that time we have sold about

400 AERMOTORS

in our small territory is represented the history of the Aermotor and the Aermotor Company from the beginning to the present hour. That history is one of unbroken triumph.

Aside from the Aermotor other windmills put up enough with which to show the infinite superiority of the Aermotor in design, finish, full galvanized iron, and ability to run when all others stand. We should have sold more, supplied with wind power, but it being only 60 miles years been the battle ground largest, best known and panies, all being located MUCH OF OUR BUSINESS PLACING WOODEN AND TORY WHEELS WITH you have during the past vious year's record by you expect to double your coming year. Count on us for the Aermotor never stood farther above all competitors in reputation and in fact than to-day. SUTTS & BAIGER, Marengo, Ill., February 25, 1895." In another Aermotor advertisement, which every one should read, we offer for



\$7.50 A \$15

three way force pump. All dealers should have it or can get it to sell at that price. All Aermotor men will have it. In still another ad. appears our offer of galvanized steel tanks at 25c. per gallon. They neither shrink, leak, rust, nor make water taste bad.

Aermotor Co., Chicago.

(In responding to this advertisement mention GLEANINGS.)

PURE

ITALIAN

BEES.

By the pound, 90 cents. Untested queens from imported mother, 90 cts. Two-frame nuclei, both frames containing brood with all adhering bees, and untested queen from imported mother, \$2.00. Tested queens, \$1.50. Satisfaction guaranteed. I will be ready to ship by May 25th.

MRS. A. F. PROPER,
PORTLAND, JAY CO., IND.

Patents Pending

On new process, new machines, new product, in manufacture of comb foundation.

Result:

Lowest prices, best work. Samples and price list free. Wax wanted.

W. J. Finch, Jr.,
Springfield, Ill.

Please mention this paper

HONEY COLUMN

CITY MARKETS.

KANSAS CITY.—Honey.—The stock of comb honey is large; market well supplied. Fancy white 1-lb. combs, 13; amber, 11. Receipts of extracted light; white, 7; amber, 5½@6; Southern, 4½@5. Beeswax, 29.
HAMLIN & BEARSS,
Kansas City, Mo.
May 8.

CHICAGO.—Honey.—We report our market well cleaned up on fancy white comb honey in 1-lb. sections. A neat package and a fancy article would sell quickly at 14c. No. 2 comb, or dark, would not sell at over 10¢@11. We report better inquiry for extracted, at 5¢@7, depending on quality. Beeswax selling at 30c.
S. T. FISH & CO.,
189 South Water St., Chicago, Ill.
May 7.

ST. LOUIS.—Honey.—We have fairly good trade in honey, and on account of early receipts of new crop expect an improvement. We quote comb, 10¢@13; extracted, in cans, 6½¢@7; in barrels, 5¢@5½. Prime yellow beeswax, 27¢@27½.
D. G. TUTT GROCER CO.,
St. Louis, Mo.
May 8.

KANSAS CITY.—Honey.—The demand for comb honey is light. We quote No. 1 white comb, 13¢@14; No. 2, 1-lb., 12¢@13; No. 1 amber, 11¢@12; No. 2, 10; extracted, 5¢@7. Beeswax, 25.
C. C. CLEMONS & CO.,
Kansas City, Mo.
May 8.

DETROIT.—Honey.—Best white comb honey 13¢@14, with little in sight. Dark, unsightly lots almost unsalable. Extracted, 6¢@7. Beeswax, 28¢@30.
M. H. HUNT,
Bell Branch, Mich.
May 9.

CLEVELAND.—Honey.—Our honey market is very slow. No. 1 white, in 1-lb. sections, 12c; No. 2, 10; extracted, No. 1 white, 6¢@8. There is a fair demand for extracted, but no call for the comb. Beeswax is selling at 28¢@30.
WILLIAMS BROS.,
80 & 82 Broadway, Cleveland, O.
May 7.

BOSTON.—Honey.—We quote our market at 13¢@14 for best 1-lb. comb honey, and 5¢@6 for extracted, with light demand.
E. E. BLAKE & CO.,
Boston, Mass.
May 8.

PHILADELPHIA.—Honey.—Comb honey finds little or no sale now in large city. Extracted is selling freely. We quote comb, 9¢@11; extracted, 5¢@6. Beeswax, 31.
WM. A. SELSER,
10 Vine St., Philadelphia, Pa.
May 8.

MILWAUKEE.—Honey.—Since our last there has not been much change on this market on honey. The receipts have been good, and our supply is of general good quality. The receipts of late have rather exceeded our sales, and market now is somewhat easy and sales slow. Can quote best 1-lb. sections, 15¢@16; second, 13¢@14; third, 10¢@13. Extracted, in bbls. or kegs, white, 7¢@7½; dark, 6¢@8; in pails, white, 8¢@8½. Beeswax, 26¢@28.
A. V. BISHOP & CO.,
Milwaukee, Wis.
May 8.

DENVER.—Honey.—There is an improvement in our market for both comb and extracted honey. We quote No. 1 comb, in 1-lb. sections, at 11½¢@12½; No. 2, 9¢@10. Extracted, No. 1 white, in 60-lb. cans (2 in a case), 6¢@7. We are short on No. 1 comb, and could handle a quantity to advantage.
R. K. & J. C. FRISBEE,
Denver, Col.
May 9.

CHICAGO.—Honey.—The amount of comb honey that is sold during this month is very small, consisting of a case now and then, so that the market fluctuates but little. Sales are made at 14c for best grades now obtainable, all fancy lots having been disposed of. Extracted is very slow of sale, with prices flexible within a range of 5½¢@7c, according to quality, flavor, color, and package. Beeswax sells on arrival at 30c when of average cleanliness.
R. A. BURNETT & CO.,
163 So. Water St., Chicago, Ill.
May 7.

ALBANY.—Honey.—Small lots of comb honey continue to arrive, but the demand is very light, owing to the lateness of season and warm weather. Prices range from 8¢@12c per lb. No beeswax on hand.
CHAS. McCULLOCH & Co.,
Albany, N. Y.
May 8.

BUFFALO.—Honey.—No material change in the honey-market. Fancy is moving slowly at 13¢@14; choice, 11¢@12; commoner grades are hard to sell, and a few tail ends remain unsold.
BATTERSON & CO.,
Buffalo, N. Y.
May 7.

NEW YORK.—Honey.—We quote beeswax at 32c per lb. Supplies are small, demand moderate.
F. G. STROHMEYER & H. ARPE,
New York, N. Y.
May 9.

ALFALFA IN ARIZONA.—We will sell you alfalfa honey F. O. B. Phoenix at 4½c in 1000-lb. lots or more. Less than 1000 lbs. at 5c in five-gallon cans. Car lots a specialty.
J. P. IVY,
Secretary Bee-keepers' Association,
Phoenix, Maricopa Co., Arizona.

ALFALFA HONEY, very white, thick, and rich. Two 60-lb. cans at 7c. Same, partly from cleome (tinted), 6c. Samples, 8c.
OLIVER FOSTER, Las Animas, Col.
May 8.

No. 1 extracted honey in 50-lb. pails at 7c per lb.—
J. B. MURRAY, Ada, O.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb and Prompt.

BEST ON EARTH.

WILLIAMS AUTOMATIC REVERSIBLE

HONEY - EXTRACTOR.

Perfect in principle and workings. Here is what the veteran bee-keeper, N. E. France, of Platteville, Wis., says of it: "I consider the Williams Automatic Reversible Extractor head and shoulders above any I have ever used, and furthermore, consider it the BEST on the market." Mr. France produces extracted honey by the carload, so he is good authority on extractors. For price list No. 1 of Extractors, choice Italian Bees, Queens, etc., address
VAN ALLEN & WILLIAMS, Barnum, Wis.

GOLDEN QUEENS Bred for business. Untested, May, 70 cts. each; 3 for \$2.00. Tested, \$1.00 each. Fine breeders, \$2.00 each extra. Select straight 5-banded breeding-queens, \$4.00 each. To all new customers one **GOLDEN QUEEN** for 50 cts. Satisfaction and safe arrival guaranteed.

E. A. SEELEY, Bloomer, Ark.
P. O. Money Order office, Lavaca, Ark.

Hives, Foundation, Sections, Bees, Queens, Or Any Thing A Bee-keeper Needs.

2-frame nucleus with untested queen	32 50
3-frame nucleus with untested queen	3 25
Ready to ship. Discount on quantities.	
40,000 No. 2, 4¼x4¼x7 to foot sections, per 1000	1 50
40,000 No. 2, 4¼x4¼x1½ sections, per 1000	1 35
Every thing shipped from this city. Catalog free.	
I. J. STRINGHAM, 105 Park Place, N. Y. City.	

☞ In writing advertisers please mention GLEANINGS.

Still in the Lead!

Hilton's White T Supers,
Chaff Polished Foundation,
Hives, Sections, Smokers,
and every thing needed in the apiary.

Send for 1895 catalog.

GEO. E. HILTON, = = Fremont, Mich.
Please mention this paper.

Best on Earth.



Bingham's five sizes of bee-smokers range in price from 50c to \$1.75 per mail, and are the lowest-priced of any in the market, according to size. Bingham Smokers and Knives are made only by the inventor, and can be depended on every time, as they have been for 16 years as the best that could be made or used.



Mention GLEANINGS, and send for circular of prices.

T. F. BINGHAM, Abonia, Mich.

Please mention this paper.

Control Your Swarms, Requeen, Etc.



Send 25c for samples of West's Patent Spiral Wire Queen-Cell Protectors, and Pat. Spiral Queen Hatching and Introducing Cage, also best Bee-Escape, with circular explaining. Twelve Cell-protectors, 60c; 100, \$3, 12 cages, \$1; 100, \$5, by mail. Circular free. Address N. D. WEST, Middleburgh, Scho. Co., N. Y.

Sold also by all the leading supply-dealers.

☞ In responding to this advertisement mention GLEANINGS.

Golden Queens From Texas.

My queens are bred for business, as well as for beauty and gentleness. Safe arrival and reasonable satisfaction guaranteed. Untested, \$1.00; tested, \$1.50.

Write for price list.

5-16ei

J. D. GIVENS, Lisbon, Texas. Box 3.

Dovetailed Hives.

Sections, Extractors, Smokers, and every thing a Bee-keeper wants. Honest Goods at Close Honest Prices. 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.



Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of beehives, etc., to make, and we expect to do it all with this saw. It will do all you say it will."

Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient orders for Barnes' Foot-Power Machinery may be sent to

The A. I. Root Co.

☞ In responding to this advertisement mention GLEANINGS.

Carniolans

Imported, \$5 each.

Bred in 1894 at the most elevated point among the Carnic Alps where bees are kept. Untested daughters of these, \$1 each; 12 for \$10. Tested daughters producing gray bees, \$2 each; 12 for \$18.

MRS. FRANK BENTON,

Charlton Heights, Md.

☞ In responding to this advertisement mention GLEANINGS.

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,

125fdb Sole Manufacturers,
Sprout Brook, Montgomery Co., N. Y.

☞ In responding to this advertisement mention GLEANINGS.

Look Here, Bee-keeper!

If you are in need of bee-supplies, write for catalog and price list. Every thing sold as cheap as the cheapest.

W. E. Smith.

Kenton, Hardin Co., O.

WE WILL PREPAY

Freight charges on orders for Root's polished sections, and 16-section white basswood shipping-cases, at his prices, to be shipped from factory to points within 300 miles, in lots of 5000 and 200 or over respectively. Send for catalog.

B. WALKER, Evart, Mich.

Please mention this paper.

Sweetheart.

A Regular Sugar Lump.

LEADS ALL WATER-MELONS ON THE MARKET. Early, Large, Handsome, Good Shipper, Best Quality. Send for circular giving important facts to growers and shippers, with comparative sales and opinions of many commission men in leading northern markets.

Seed, Packet, 10 cts.; 1 lb., \$1.50.

ALBERT WITTENMYER,

Originator, Grower, and Shipper,

Emison, Knox Co., Ind.

☞ In responding to this advertisement mention GLEANINGS.

DON'T MONKEY NOW.

Send for our 36-page catalog free.

Root Co.'s Supplies kept in stock.

In order to reduce our stock for the next two months will give large discounts. Write us what you need. Get our prices.

JNO. NEBEL & SON, High Hill, Mo.

Please mention this paper.



World's Fair Medal

Awarded my Foundation. Send for free samples. Dealers, write for wholesale prices. Root's new Polished Sections and other goods at his prices. Free Illustrated Price List of every thing needed in the apiary.

M. H. Hunt.

Bell Branch, Mich.

Please mention this paper.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc.

PAGE & LYON MFG. CO.,

Stfdb

Please mention GLEANINGS.

New London, Wis.
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THE SOUTHERN Home of the Honey-Bee

Is ready for your orders for 3 or 5 banded queens, as good as the best, guaranteed free from paralysis. Warranted queens, 75c each; tested, \$1.00. After June 1, warranted, 50c each; tested, 75c each. Good breeders, \$2.00. Straight 5-banded, or "faultless," queens, \$2.50 each. Special prices on lots, also to the queen-dealer. Safe delivery and satisfaction guaranteed. Circular free. Address

HUFSTEDLER BROS., Clarksville, Tex.

In responding to this advertisement mention GLEANINGS.

WHY NOT

Send your orders to W. H. Laws for Italian Queens?

THE BEST IS THE CHEAPEST.

For beauty and business you can't beat them. The leading bee-keepers of the U. S. are my customers, and all praise them. I breed either the Golden or Leather-colored strains.

PRICES REDUCED

To suit the times. Fine breeders always on hand, \$2 to \$3. Untested, 75c; 3 for \$2. Tested, \$1; 6 for \$5. Address

W. H. LAWS, LAVACA, ARK.

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Alley's Combined

Description and price list now ready.

HENRY ALLEY, Wenham, Mass.

Please mention this paper.

Queen-Trap and Swarm-Catcher.

A Tested Queen Free!



Pure Italians. To every one buying 1½ doz. untested queens I will give a tested one free. Untested, 60c; tested, \$1.00; selected tested, \$1.50; breeders, \$3.00.

STEWART BROS., Sparta, Tenn.

MUTH'S HONEY-EXTRACTOR, SQUARE GLASS HONEY-JARS.

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "Practical Hints" will be mailed for 10c in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.

Given Foundation

Ready for Delivery.

We are now making, as previously announced, Given foundation on rolls. We can supply the product at the same price as the regular wax. Customers who desire a small quantity to experiment with can have a little added to the regular foundation if they will so specify in their orders. We neither indorse nor condemn it, but hope it will be tried sufficiently to test its merits. The surplus Given has extra thin bases. **The A. I. Root Co., Medina, O.**

Queens, Either 3 or 5 Banded.

After May 1st, 75c; 6 for \$4.25. Nuclei cheap. Also poultry eggs for hatching, 50c up. Send for catalogue. Send your orders now. Can please you.

CHAS. H. THIES, Steeleville, Ill.

Eggs for Hatching

From Prize - Winning Fowls. 50c and \$1.00 per 15.

Send for circular.

AUGUST GOETZE & SON,

3822 Wood St., Wheeling, W. Va.

Please mention this paper.

Best Goods

At lowest prices are what we are all after. The quality of Cary's goods has never been questioned. His X X white thin foundation and polished one-piece sections are the finest on the market. His bees and queens are from the best strains, and reared and shipped in the way that long years of experience have shown to be the best.

He has the largest stock of **BEE-KEEPERS' SUPPLIES** in New England; and as to prices you have only to send for a catalog and compare them with those of other dealers.

To those living in the East, there is the still further consideration of low freight rates. Address

W. W. CARY,

COLRAIN,

MASS.

In responding to this advertisement mention GLEANINGS.

W. O. Victor, of Wharton, Tex., took

45,000 Lbs. of Honey in 1894.

He offers Italian Queens—good, 'old-style honey-queens—untested, first order, to any address, at 50c each. Also bees in any quantity; 450 colonies to draw from. Root's goods constantly in stock. Prices to suit the times. Buy near home, and save freight.

In responding to this advertisement mention GLEANINGS.

«MONEY-MAKERS»

Are a strain of business Italians that winter in the cold North, and are ready for business, with a bushel of bees, when the flowers bloom. They are gentle and industrious. Queens warranted purely in June. Each, \$1.00; six, \$5.00; doz., \$9.00. Safe arrival and satisfaction guaranteed. Never had any disease.

Address **E. F. QUIGLEY, UNIONVILLE, MO.**

Please mention this paper.

ITALIAN BEES AND QUEENS.

Ready in May. Queens, \$1.00. Bees by the pound, \$1.00. One-frame nucleus with queen, \$2.00; two frames, \$2.50. Also Barred Plymouth Rock eggs for setting, \$1.00 per 15.

6-17c **MRS. A. A. SIMPSON, SWARTS, PA.**

In responding to this advertisement mention GLEANINGS.

Eggs

From 8 leading varieties of fowls, including Imperial Pekin Ducks. Send for descriptive list to **J. S. MASON, Medina, O.**

In writing advertisers mention this paper.

BEGINNERS.

Beginners should have a copy of the Amateur Bee-keeper, a 70-page book by Prof. J. W. Rouse. Price 25 cents; if sent by mail, 28c. The little book and the Progressive Bee-keeper (a live progressive 28-page monthly journal) one year, 65c. Address any first-class dealer, or

LEAHY MFG. CO., HIGGINSVILLE, MO.

In responding to this advertisement mention GLEANINGS.

TESTED QUEENS

Are usually sold for \$2.00. I will explain why I wish to sell a few at less than that. As most of my readers know, I requeen my apiary each spring with young queens from the South. This is done to do away with swarming. If done early enough it is usually successful. It will be seen that the queens displaced by these young queens are never more than a year old; in fact, they are fine, tested, Italian queens, **RIGHT IN THEIR PRIME**; yet, in order that they may move off quickly, and thus make room for the untested queens, they will be sold for only **ONE DOLLAR**. Or I will send the **REVIEW** for 1895 and one of these queens for only \$1.75. For \$2.00 I will send the **REVIEW**, the queen, and the book "Advanced Bee Culture." If any prefer the young, laying queens from the South, they can have them instead of the tested queens, at the same price. A discount on large orders for untested queens. Say how many are wanted, and a price will be made. Orders can be filled as soon as it is warm enough to handle bees and ship queens with safety.

W. Z. HUTCHINSON, Flint, Mich.

Ten Weeks for Ten Cents!

For ten cents (in stamps or silver) the **American Bee Journal** will be sent for **Ten Weeks** (10 numbers) to any one who is not now a subscriber. A ten weeks' trial is a fair trial, and ten cents is a small price for the testing. Better accept this offer at once, or at least send for a free sample copy of the **Weekly American Bee Journal**. Address

GEO. W. YORK & CO., 56 Fifth Avenue, Chicago, Ill.

E. KRETCHMER, RED OAK, IOWA,

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SENDS FREE HIS CATALOG OF 72 ILLUSTRATED PAGES; DESCRIBES EVERYTHING USED IN THE APIARY; BEST GOODS AT LOWEST PRICES. CAPACITY ONE CARLOAD A DAY. WRITE AT ONCE FOR HIS CATALOG.

4-8

Untested Italian Queens.

I have untested queens ready to mail, yellow to the tip, bred for business and beauty, easy to handle, at 75c each; 3 for \$2.00; 6 for \$4.00; \$7.00 per doz. Bred from best 5-banded stock, free from disease.

W. A. COMPTON,
Lynnville, Tenn.

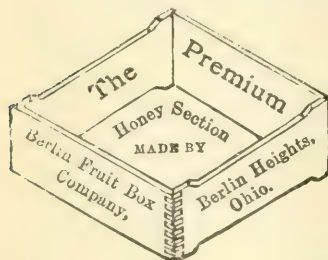
Imported

Italian Queens of '95 rearing, after May 15, \$3.10 each; tested, now, \$1.50 to \$2 each. W. C. FRAZIER, Atlantic, Iowa.

NUCLEI.

1, 2, or 3 S. frames, 50 cents each frame. Queens from imported stock. Hardy, beautiful and prolific. Untested, \$1; tested, \$1.50. Portico S. hives, 75 cents. MRS. OLIVER COLE, SHERBURNE, CHEMUNGO CO., N. Y.

EGGS from pure B. P. Rocks, cheap, for hatching or incubator. Cards cheerfully answered. MRS. L. C. AXTELL, Roseville, Illinois.



Order your supplies early before the rush gets you. Send for our price list of Bee supplies and Fruit packages. Address

BERLIN FRUIT BOX CO.,
Berlin Heights, Ohio.

Woodcliff Business Queens.

To please all, am breeding both Leather-colored and Golden 5-banded Italians. Have five apiaries, 3 to 5 miles apart, running 350 nuclei. Your orders filled promptly. The Leather-colored 3-banded Breeder, imported from Italy, Oct., '94. The Golden 5-banded Breeder, selected from 1000 queens, some producing 400 lbs. of honey to colony. State what you want, and send orders now for early delivery. Guaranteed queens, 75c; special low price in quantities. Send for descriptive catalog.

Wm. A. Selser,
Wyncote, Pa.

QUEENS. IMPORTED ITALIAN MOTHERS ONLY.

Untested, 55 cts.; doz., \$6. About 11 out of every 12 will make fine tested queens, and for gentleness and industry we defy the world to beat them. Safe delivery. Money-order office, Decatur, Ga.

CLEVELAND BROS., Stamper, Newton Co., Miss.

NOTICE.

We have proven to our satisfaction that queens bred in the North produce bees that are **harder** and **winter better** than those bred in the South. We make queen-rearing a specialty. We never saw foul brood or bee-paralysis. Send for our free descriptive price list of our Gray Carniolans and Golden Italians. Prices to suit the times.

F. A. LOCKHART & CO., Lake George, N. Y.

If Tons of Honey,

Pleased Customers, and Increasing Trade is a criterion, then my queens are satisfactory. **Warranted** purely mated queens from 5-banded strain, 75c; six for \$4.00; dozen, \$7.50. Safe arrival and satisfaction guaranteed. Send for free circular.

J. B. CASE, Port Orange, Vol. Co., Fla.

GOOD GOODS are always in demand.

LOW PRICES are appreciated in these times.

PROMPT SERVICE is a necessity in business.

We combine all three.

Write for free catalog and price list.

G. B. Lewis Co., Watertown, Wis.

In responding to these advertisements mention this paper.

GLEANINGS IN **BEE CULTURE** A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS. ILLUSTRATED SEMI-MONTHLY Published by THE A. ROOT CO. \$1.00 PER YEAR MEDINA, OHIO.

Vol. XXIII.

MAY 15, 1895.

No. 10.

STRAY STRAWS FROM DR. C. C. MILLER.

A GLORIOUS SPRING for bee-keepers.

THAT FEEDER of H. K. Boardman is hard to beat as an entrance-feeder.

CRIMSON CLOVER, according to J. C. Smith, in *American Bee Journal*, does best sown with buckwheat.

TEN FEET OF SNOW covered four hives for more than eleven weeks, and the bees came out all right.—B. B. J.

DR. J. P. H. BROWN, of Augusta, Ga., has taken charge of the Southern Department in the *American Bee Journal*. Good man.

I CAN NOT RESIST the impression, from all I've read in *GLEANINGS*, that A. I. Root doesn't entirely approve of Electropoise and Oxydonor.

THE LIME as a honey-tree, is a little confusing. Sometimes it means the linden, or basswood, and sometimes it means a small tree much like the lemon.

STATISTICAL REPORTS received by *GLEANINGS* seem encouraging, and yet elsewhere reports are quite discouraging, losses even reaching 50 and 80 per cent.

BASSWOOD, says Dr. Brown, *American Bee Journal*, is rarely found south of latitude 33°, and then only on low land. The European variety does better than the common.

A NEW SMOKER, Zaehring's, is described in German bee-journals. It's nothing more nor less than an atomizer, or sprayer, with a big rubber ball. But it's well spoken of.

THE ANCIENT ROMANS believed that bees originated from the decaying carcasses of cattle. [There was a good bit better reason for believing this centuries ago than for putting faith in Electropoise and Oxydonor.—ED.]

GRAVENHORST says that young queens that do not issue with a swarm, but merely emerge

from the cells and remain in the hive, are, as a rule, much later in becoming fertile than those issuing with a swarm. He prefers the latter queens.

DOOLITTLE defines his position as to spreading brood, in *American Bee Journal*. He would spread only when the queen does not keep filled with brood the combs well covered by bees. That's all right, isn't it? [Yes, sir; and when that rule is followed, no bad results will follow.—ED.]

FARMER HARDWEAR at the telegraph office.—“How much will you charge to telegraph my son \$300 at college?”

Operator.—“Two dollars.”

Farmer Hardwear.—Gosh! that's cheap! Yer's the \$2. Send it quick as lightning.”—*Chicago Record*.

“MELILOFUS is one of the very few plants which are able to draw their supply of nitrogen from the air; and hence by and through its biennial decay it furnishes the most valuable and most expensive factor in commercial fertilizers free of cost, and in the best form.”—*Prof. S. M. Tracy*, Director Miss. Exp. Station.

DOOLITTLE's observation, p. 361, as to colonies deserting in spring, leaving nice brood and plenty honey, agrees with mine, and in every case I think there has been more brood than the bees could cover. Is it because the bees have become so reduced in numbers that they desert rather than stay and see that brood die?

DWARF ROCKY MOUNTAIN cherry promises well with you, friend Root, but it may be well to add a caution. It was boomed at the World's Fair, but I heard a company of horticulturists denounce it as a humbug, and if I remember rightly the veteran Edgar Sanders said it formerly grew wild on the lake shore near Chicago.

A ASTOR, in *Revue*, says his hives containing 6770 cubic inches inside the frames are too small. Dzierzon, in his “Rational Bee-keeping,” says, “A space of about 3000 cubic inches will be sufficient in most districts; neverthe-

less, a space of 5000 to 6000 inches will do no harm, if there be no difficulty in partitioning off the superfluous space." Quinby thought 2000 was enough for the brood-nest. An eight-frame dovetail has 1579 inches; a ten-frame, 1964.

GRAVENHORST advises thus with respect to after-swarms. Wait till the first after-swarm issues; cut out all queen-cells, and return the swarm. Friend Gravenhorst, I believe some who desire no increase might carry the plan still further. Kill or remove the queen of the prime swarm, letting the swarm return, then treat the second swarm as you advise.

OVEREATING shortens a man's days in more ways than one. It shortens the number of days, and it shortens the number of waking hours in each, for he must sleep off the effects of the surfeit. [I wish this same sensible good advice had been given me years ago. All the same, I am and have been profiting by it for the last six months. Better? Of course, I am. I believe at least half the ailments are indirectly traceable to this one thing.—ED.]

UNITING. "A colony having a laying queen will accept without any trouble any colony which has been queenless for at least 24 hours. Consequently, if you want to unite two colonies standing side by side, deprive one of its queen; and the next day, or the day following, hang the combs with adhering bees of the one colony in the second story of the other colony, immediately above the bees below, and remove the empty stand."—C. F. Muth, in *American Bee Journal*.

"SEPARATING SWARMS when two or three cluster together.—If for three swarms, tier up three hives with an entrance to each on a stand; raise the bottom hive an inch from the board to give the bees room to go in; shake the bees in front of the hives, stop the entrances to the two upper ones, and let them settle for half an hour; then take the top hive and put it on a stand; put the second on another, and let the bottom one remain, and your three swarms and queens are separated."—P. D. Wallace, in the *American Bee Journal*.

"WE BOOMED the T-super arrangement in our 1895 catalog harder than ever, putting in a nice wood-cut."—GLEANINGS, p. 394. Yes, and right under that nice cut you say, "We consider the section-holder superior." How's that for booming the T super? No wonder your packers "hardly know what it is." And then you want to make out an old stove fits me! I'll fit you in an old stove if you don't look out. [The quotation taken alone as above doesn't boom the T super very much. But in the same paragraph we refer to others, including yourself, who think the T super the better. The paragraph as a whole gives it a good prominence. Perhaps "boom" was too strong a word.—ED.]



FEEDING BEES.

FEEDING BACK TO HAVE UNFINISHED SECTIONS COMPLETED.

By H. R. Boardman.

The last few years have brought to the surface considerable discussion in regard to this kind of feeding, and a diversity of opinion still prevails among very good bee-keepers in regard to it. About the only important thing left yet unsettled is, whether it pays or not. There have been some figures given the public, upon this question. It is said that figures will not lie. I can not deny it; but they are sometimes manipulated so as to be misleading. I will give you the benefit of my experience and opinions, without figures.

The object sought is, to follow some plan by which the feed will be stored in the sections as much as possible. This the bees are not disposed to do so long as they have room in the combs near the brood-nest. I have tried two plans. One is, to deprive the brood-hive of combs as far as possible, and thus compel storing in the sections. The other is, to deprive the colony of a brood-nest, making them queenless, with only enough brood to raise a queen. In the first place, I put a swarm upon empty frames with starters only, by shaking them out (or drumming out) from a populous colony, leaving the old colony to raise a young queen. I feed immediately; and as soon as the queen begins laying in the newly started combs I put on the sections and continue feeding rapidly for 25 days. This gets most of the feed into the sections, excepting that used for brood and comb-building, and a little stored outside of the brood-nest in the new combs. These combs will be nice worker-combs mostly, and will, I think, be worth all they cost.

QUEENLESS COLONIES.

The second plan—that of depriving the colony of a brood-nest by making it queenless—throws the bees all, or nearly all, into the sections, where there is comb already built, and they will continue the work there mostly, as there seems to be no inducement to build comb in the brood-chamber. The plan I have followed in my experiments is the same as already given, except that I remove the queen back to the old colony as soon as a few eggs appear in the newly started combs, sufficient to hold the bees and enable them to build queen-cells. I had great hopes for this plan, and, indeed, it has some advantages. But it must be borne in mind, that, although the bees build but little comb in the brood-chamber, being queenless, the combs will be imperfect, and filled with the feed. To remedy this I cut them out as fast as

built, and allowed the bees to carry back into the sections the honey they contained. But there is so much upon the unfavorable side of this question that I am not prepared to recommend this kind of feeding as very practical, and I think it would be most likely to prove unprofitable. By way of experiment upon a small scale, it is well enough. Very much is to be learned by such experiments. I could give figures upon this kind of feeding, that would show a profit very clearly; but in giving them, many of the unfavorable details would be left out, lost sight of. It involves a great amount of work and care, from beginning to end, and I have nearly always failed in the most important part—that of getting a choice finished product. Unless the sections are unsealed before they are put on they will be finished with a rough and patchy look, and will be, according to my experience, more or less stained with propolis, which gives them an untidy appearance.

WHAT TO DO WITH UNFINISHED SECTIONS.

The best and most profitable way for the average bee-keeper to dispose of unfinished sections, I am convinced, is to extract all that will not sell as second grade for as much as extracted honey will bring, and use them for bait sections the next season. There is a value in these nice white combs for this purpose, that is not appreciated by very many.

SUGAR HONEY.

There have been a good many suspicious hints dropped in the past few years about sugar honey. Cheap sugar has been the tempter. But nothing has materialized from these suggestions but talk, so far as I know. I am going to consider only the practical phase of this question, and leave the scientific part to the scientist. So far as feeding sugar to be stored in the sections is concerned, it is sufficient to know that there is no inducement for such a practice. Until bee-keepers have the courage to feed sugar for stores in the brood-chamber to the full extent necessary for that purpose, there is no use in wasting our valuable time discussing the very remote possibilities of sugar honey. It would seem like very poor economy to fill the brood-combs with the choicest honey from the flowers, and the sections with sugar, even if it were practical, when just the opposite is desirable, and much easier to accomplish. It would be somewhat like the economy in dairying, of feeding the cream to the calves and pigs, and saving the skimmed milk for use.

MAKING NEW COLONIES; NATURAL COMBS VS. FOUNDATION.

After the honey season is over, and that mysterious impulse to swarm is abated, new colonies may be made and built up from sugar feed. Natural combs built at this time will be almost entirely free from drone comb, and will compare favorably in perfection with combs drawn from foundation. There is a large force of workers lying idle; and the busy season being

over makes it somewhat of a temptation to do such work at this season. I have thought it just as well to wear these bees out as to let them live in idleness and die of old age, provided, of course, there was any profit in it. I have a good many of these natural combs in use now that I have built in this way in the last few years, and they give very good satisfaction. I reasoned that, with the prevailing low price of sugar, and the high price of wax, together with the late succession of poor seasons, bee-keepers ought to be able to become producers of wax by raising natural combs, instead of consumers by using foundation. I do not really think there is much money in it. I only hope it may help in the sharp struggle for survival, especially in poor localities.

This work gives an excellent opportunity for superseding the old queen—a very profitable work. In any of these operations described, if no increase is wanted the bees may be united back upon the most desirable combs. I have no doubt that new combs are best for building up in spring, but old ones may be better for wintering outdoors.

East Townsend, O.

WHAT CONSTITUTES A GOOD BEE?

NINE POINTS CONSIDERED IN THE ORDER OF THEIR IMPORTANCE.

By S. E. Miller.

What are the essential qualities in a colony of bees? Perhaps it would be hard for all bee-keepers to agree on this subject; but I have given some thought to it lately, and after thinking the matter over I would place the points about as follows:

1. Prolificness of the queen.
2. Honey-gathering qualities of the workers.
3. Hardiness in wintering.
4. Disposition of workers—gentleness, etc.
5. Non-swarming.
6. Comb-building.
7. Longevity of queen and workers.
8. Size of workers.
9. Color.

Probably no one will agree with me in the exact order I have placed the points of excellence, and probably no two bee-keepers would agree exactly. I am not speaking of the manner in which a colony would be judged at a fair; for at a fair they might be judged very unfairly; for at best it is little more than guesswork. The judge, in all likelihood, has no knowledge of the working qualities of the colony, so that size and color would be apt to guide him mainly in rendering his decision.

But what I am speaking of is the colony of bees that will earn dollars and cents for their keeper. And now let me explain why I have placed the points of superiority as shown above. Let us consider the first point. There, I be-

lieve, nearly all will agree with me, that the first essential to a No. 1 colony is a prolific queen that can be relied upon to produce a host of workers at just the time when most needed; and without a prolific queen it matters not how good the workers are. If there are not enough of them we can not expect them to store a large quantity of honey. Having a queen that will place a strong force on the stage of action at the time when most needed, we want that force to get a move on them and roll in the honey while their neighbors are hanging on the shady side of the hive or coming the "washboard act" around the entrance. So we see that, having these two points combined, we come very near having a perfect colony already. But let us proceed to the third point.

Having stored a large quantity of honey this season we want them to do as well next year again; and in order to attain to this end it is essential that they be able to withstand the severe winter weather without having to be put into a feather bed. To those who winter in cellars this point might be considered of minor importance; but we do not all winter our bees in cellars, and probably there are many of us who never will; therefore we want colonies that will pass the winter with the least possible loss in numbers, and come out strong and healthy in the spring.

Fourth, gentleness. No one, I presume, will deny that this is a desirable trait in bees, and probably some would place it above some of the points named above; but should a cross colony, of strength equal to one of a gentle disposition, gather, say, a third more honey in a given time, I believe I would manage to get along with the cross ones for the extra amount of honey they store.

Non-swarming, or the absence of a desire to swarm, is a trait that the comb-honey producer would probably place among the first qualities to be desired; but so long as swarming comes with prosperity and seasons of large crops of honey, and non-swarming is accompanied by failures, I should consider swarming the lesser of the two evils, if swarming may be considered an evil.

Sixth, comb-building. In order to produce a first-class article of comb honey we want bees that will go to work at it in a business-like manner, building straight even combs, and attaching them securely to the sections all around. But as this also depends largely upon the honey-flow and the condition of the colony as well, it can hardly be considered as one of the first essentials of a first-class colony; for, in my experience, almost any fair to good colony will do good work in this line provided there is a sufficient flow of nectar for a number of weeks at a time. As to the whiteness of the cappings, it is merely a matter of fancy; for the honey inside of a comb having a translucent appearance is as good as and often better than that having the whitest cappings. However,

so long as the market demands white combs it is to the bee-keeper's interest to produce such.

Longevity in queens is something to be desired, but is not of such great importance when we consider that every practical bee-keeper can rear an abundance of queens at very little cost; yet a queen that will do good service for three years is worth more than one that wears out in one season, and we should certainly prefer the former to the latter kind. As to longevity in the workers, it seems no one has given the matter much thought or study. No doubt a worker that would live and do good work for sixty days at the season when most needed would be worth more than one that wears out from overwork at from forty to forty-five days; but probably it will be a long time before any one sets up the claim that he has a strain of bees in which the workers live to a greater age than those of the ordinary kind. Probably under the same circumstances—that is, having the same care from the egg to the adult, doing the same amount of work, having the same protection from cold, etc., one worker will live as long as another.

Large size, in both queens and workers, is something we admire; but who would care to have them as large as the fellow said they grew to be in Germany (as large as sheep) if they gather no more than those of smaller size? Yet the fact remains, that the larger bee may have a proportionately longer tongue than the smaller one, so that size should not be lost sight of in breeding for the best.

Color—there is my ninth and last point of excellence. Won't some of the yellow-banders be ready to jump on to me for placing color at the tail end? Probably I should have made ten points, while I came so near it; but I will leave that for some other fellow to put on. Had I mentioned ten points, color would certainly have been the tenth—not that I am opposed to beautiful bees, or that I should not prefer them provided they were as good as their more homely cousins; but really if we had a strain of bees that would gather one thousand pounds of A No. 1 honey per colony in a season, would it matter whether they were brown, yellow, green, or red? Are the fastest trotters the handsomest of the horse kind? Are the prize-winning Jersey cows the prettiest cattle? or have the breeders who bred them up to the high standards of excellence bred for beauty, or for the profit there was in them? If any one can show that color or beauty should be placed above any one of the other eight points I have named, I am ready to give him a cooky; and yet have not many bee-keepers from the Atlantic to the Pacific, from Maine to Texas, been chasing after yellow bands, instead of large crops of honey, for the last three or four years? Nearly all breeders of the so-called golden or five-banded bees claim that their strain is bred for business; but who among them

will stand up and say that, while breeding for yellow bands or solid yellow, he has all the time kept in mind, paid close attention, and given painstaking care to the other eight points of superiority to be desired in the honey-bee of the future? Who is he or she? Where do they live? I hear no answer, but the owl repeats the words—

"Who who—who are you?"

Bluffton, Mo.

[This is another excellent article, and I could not help saying "Yes, yes," to every point friend Miller gave. I wish all bee-keepers, especially queen-breeders, would read this over carefully. Yes, friend Miller, if you had enumerated 100 good points I believe I should have put color at the bottom of them all. It would not do to give it even a favorable position, for then some queen-breeders and some bee-keepers would put it at the top. In fact, I wish color could be buried clear out of sight, and stay there—not that I despise beautifully colored bees, nor that I have any grudge against bee-keepers or queen-breeders who rather favor the yellow bands; but I am afraid color has already had a rather detrimental influence on the real bread-and-butter side of bee-keeping.—Ed.]

Our Hive Symposium.

THE JUMBO SIXTEEN-FRAME HIVE.

ONE LARGE SINGLE-STORY HIVE; SUCH HIVES MANAGED BY A YOUNG GIRL OF 18; QUEEN-EXCLUDING HONEY-BOARDS DISPENSED WITH AND NO SWARMING.

By N. E. Doane.

Mr. Editor:—As you seem to be interested in the item I gave you in regard to the 16-frame L. hive. I will try to tell you more about it. As I make it now I call it the "Jumbo hive." I commenced keeping bees some twenty years ago. I have used the eight-frame L. hive, also the ten, and the Simplicity hive. I commenced with the six-pound box for surplus honey, then used the prize box, in its day; then came the four-piece section and the Heddon case; the one-piece section and the wide frame. All these were used and found good until something better took their place. With me, a few years ago when the bee-keepers of our land were cutting their ten-frame hives down to eight, I cut mine the other way (some of them), and made a 16-frame hive instead. My main reason for doing so at that time was to prevent swarming, and to keep the bees storing honey contentedly throughout the season; but I soon found that a 16-frame hive covered with wide frames, and one extracting-comb, to call the bees up, was no preventive. A second story was tried on top of this, the extracting-comb giving passage to the second set of wide frames. This worked well for getting lots of honey; but much of it was travel-stained. So you see these faults in the hive I was using led me to devise something better, which came in the shape of the Jumbo hive.

Now you may ask, "What is the Jumbo hive?" Just imagine you are here, and I will tell you the best I can. Now you are here. Let us play that an eight-frame hive is made of india-rubber. You take hold of one side and I the other, and pull; now pull hard; how much has it stretched? Only twenty inches. Pull again. Now we have it 22 inches. Now give it another awful jerk. There! now we have stretched it until it is 24 inches. That is wide enough for 16 frames and a thin division-board.

There, now let us get hold of the ends and give them a jerk. Hold on! you have pulled too hard. We want to pull them only just far enough so we can use a board $\frac{1}{2}$ inch thick and $9\frac{1}{2}$ inches wide for the brood-frames to rest, or $9\frac{1}{4}$ in. with metal rabbets nailed on. Let us get inside of it and take hold of the top edge of the boards which the frames rest on. Now let's pull away at this until we get it at least five inches above the top of the brood-frames. It is getting to be quite a good-sized hive, isn't it? When we commenced pulling, the entrance was in the end of the hive; we have not changed it, except to make it a little larger; but it is now in the side of the hive. We have also changed the L. frame to a crosswise one, without marring the frame in the least.

Let us sit down now and see what we have done. We have the length to the width, and what was the width to the length. But we don't want it india-rubber any longer, but good wide inch lumber, with the bottom nailed right on tight. Now lay a strip of $\frac{1}{4}$ -inch lumber right along on the ends of the frames for your section-holders to rest on; cover up your brood-frames with cloth or board, and you are ready for the bees. When the bees are ready for the sections, place six section-holders, holding four sections each, on the strip, over the center of the hive. Make the ends of your section-holders $\frac{3}{8}$ inch thick, and have tin separators nailed on each holder. You can make your section-holders with little legs on, so they can stand on the brood-frames and dispense with the sticks. I use them both ways, but can't tell which is the better.

When the bees have commenced nicely in these sections, move them to one side of the hive and finish covering the hive with sections.

When the bees have accepted this room, and are pulling the foundation in the last sections, take six of them and place on the other six. You will now have two tiers of sections in all stages of progress, on half of the hive. Now fill the other half with sections. You now have 96 $1\frac{1}{8}$ -inch sections on the hive, and have them away above the hive. Now make a rim of $\frac{3}{8}$ lumber, with a lath belt around, to set on the top of the hive. Better use ten-inch lumber, because, if the season is good, we shall need more room. When you come to add the third tier of sections you need take only one or two section-holders from the second tier that the

bees have commenced in, and put them in the third tier; then fill in with empty sections the second tier, where you removed these. You see you can build this hive up as high as you like, and add as much section room as is needed. Last season I built one up to the fifth tier of sections. I use flat metal covers for these hives, and set the hives tipping a little toward the front.

Now, what difficulties have I overcome? In the first place, I have done away with queen-excluding honey-boards by making the hives satisfactory to the bees. I have never had a queen enter the sections. I have no use for bee-escapes, as the bees are nearly all shaken off when the honey is removed from the hive. I can take the honey as soon as it is done—one section or a hundred as the case may be—before it becomes travel-stained. I have no warping of covers or shrinking of cases or supers to let the light in, so the honey is properly finished, and, consequently, a larger per cent of No. 1 or fancy honey is secured than by any other system I know of. Swarming is entirely overcome, if proper management is given to the brood-nest the early part of the season; but if they are let alone, packing left on top, they swarm earlier than those in eight-frame hives, as they are always stronger earlier in the spring—in fact, all the season.

Breckenridge, Mich., Apr. 19.

[The following is a private note sent along with the article. It contains a valuable point; viz., that a young lady is going to manage an apiary of Jumbo hives.]

Please ask questions, and I will answer them the best I can; but I labor under very many difficulties. I am nearly blind; have not been able to see to read or write for seven years, and am used up by that dreadful disease rheumatism. My eighteen-year-old daughter is doing this writing for me. She is to take charge of an out-yard of fifty or more Jumbo hives this season. You see, when they are once located the lifting is light; but I intend to use section-holders that will hold twelve $1\frac{1}{2}$ -inch sections on these, as I believe they have some advantage over those I have used. There are many valuable points I have not mentioned, but I think I have said enough—perhaps too much.

IN FAVOR OF LARGE HIVES.

“ONE-FOURTH MORE BEES,” “FIVE TO SIX FOURTHS MORE HONEY.”

By John Slabaugh.

Mr. Root:—I am not ready yet to send a post-al, telling you that I am tired of the discussion of an eight or ten frame brood-nest; but I am ready to send my experience. I can speak for my own locality only, my kind of honey, and my way of wintering bees. When the eight-frame brood-nest question came up first, I made

my hives the same as I had made them before—a ten-frame Langstroth, with a division-board to contract to eight or nine frames, as I used to. In case the eight-frame would not answer my purpose, I could take out the division-board and go back to the ten-frame brood-nest. After a four-years' trial, eight, nine, and ten frame brood-nest side by side fully convinced me that, for my locality, my way of wintering, and the kind of honey produced, the ten-frame is more profitable than either eight or nine. First, the less the brood-nest, the more inclined to swarm. There is, indisputably, more room for a big force of workers in a ten-frame than can be crowded into an eight-frame hive. It is said the two outside combs in the ten-frame hive are not filled with brood, nor is the old honey always used up by the colony. True, it is not always used up when spring comes. Those left-over stores are a safeguard in case of scarcity; and we all know that, if they are not all used up, there will be room in the brood-nest for a fourth more bees than in an eight-frame hive. I contend we can keep the bees with the one-fourth more bees just as long in the ten-frame hive, without swarming, as we can the bees with the one-fourth less in the eight-frame hive. The one-fourth more bees will give us from five to six fourths more honey.

It might be said this is theory and not fact. Well, I hived two swarms together the 23d of June, 1894, into a ten-frame hive. They filled the ten frames, and completed me 143 lbs. of section honey, while other ordinary swarms completed only about 56 sections. We want the biggest force of bees to gather the most honey. The eight-frame will not hold as large a force of bees as the ten-frame. If some of our colonies should seem to be rather too small for a ten-frame, why, use a division-board; that will be cheaper and much less trouble than one hive-body upon another.

My next point is for my locality. I use the double-walled hive, wintering my bees on their summer stands, not having to carry my ten-frame hives in and out of the cellar.

My third point is, I am running my apiary principally for comb honey, having the $1\frac{1}{2}$ -story and the two-story chaff hives with two supers.

As I make my own hives, I will make a twelve-frame one for trial this summer. If we here can keep bees from swarming, we can expect honey. Although this is not an extra good locality for honey, yet I have handled bees for from 25 to 30 years. I have never known bees here that would not always gather sufficient for winter stores, with the exception of some late swarms.

JOHN SLAUBAUGH.

Egton, W. Va., Mar. 15.

[Perhaps before you go too far in the matter of enlargement you had better consider carefully the following:—Ed.]

THE EIGHT-FRAME HIVE PREFERRED.

LOCALITY NOT A FACTOR IN THE MATTER; EXTRA-PROLIFIC QUEENS NOT NECESSARY; MORE BEES IN LARGE HIVES, BUT LESS HONEY, AND MORE BEES IN THE FALL AS CONSUMERS THAT HAVE TO BE FED; HOFFMAN FRAMES PREFERRED, AND WHY.

By C. Davenport.

As it seems some of the readers of GLEANINGS wish the discussion on large vs. small hives continued, perhaps you will allow me to say a few words on the subject. I prefer the eight-frame size; but I am a specialist—that is, I make a living, such as it is, by producing honey; and from quite a large and extensive experience I know I can make more money with a large number of frames in eight-frame hives than I can with the same number in ten or twelve frame hives. But in order to do so it is necessary to feed some seasons in order to keep brood-rearing up. I employ a man for each yard the entire season. These are cheap men; that is, one of them who has been with me for a number of seasons is a man who has one wooden leg; another is a man who is not able to do a hard day's work. But they can feed bees all right. I believe the majority of bee-keepers, though, keep bees as a side issue only, and many of these do not wish or have not time to do much feeding in the spring and early summer, if necessary. For this class, as a general thing, I think the ten-frame hive the best; for the honey those two extra combs will contain, will, in a poor season, enable brood-rearing to be kept up much better than it would be with only eight. If no feeding were done, and if a flow did come, the colony on ten frames would have a much larger force of workers to secure it; but when I have gone beyond ten frames, in general I have got just that much less surplus—that is, with a twelve-frame hive I do not get as much surplus within 14 or 16 lbs.; and, besides, such a hive costs more, and it is much harder work to handle them. I do not think the locality makes much difference to the specialist about the right size of hive. Of course, it might make a difference as to the time, and amount to be fed. I believe I can make more in any locality with frames in the eight-frame hive than I can with the same number of frames in larger ones; for my experience has been that, as a general thing, eight frames are enough for the best queens we can get at the present time. In saying "the best queens" I do not mean those that are the most prolific. I have had queens that would keep ten and in a few cases even twelve frames full of brood; but these queens needed to be prolific, for their bees were so short-lived that these colonies could not store as much surplus as others whose queens did not keep eight frames full.

Again, I have had very prolific queens whose bees lived long enough; but they were worthless so far as surplus honey was concerned, for

their entire time and attention seemed to be devoted to raising bees, and swarming.

Last season, a poor one in this locality, I had in the home yard a high-priced queen that I had bought the previous summer. She was in a ten-frame hive, and she needed ten frames, for she was very prolific. This colony did not swarm. They partly filled one super. There were perhaps 15 sections completed. An eight-frame hive stood right beside this one, the queen of which was a hybrid. I do not believe she laid an egg in either of the outside combs during the entire season; yet this colony filled 96 sections, and had plenty of stores for winter; and it is to-day one of the strongest colonies I have. Another colony, in an eight-frame hive, whose queen, a pure Italian, was also bought the previous summer, filled five supers of 24 sections each. There were a few in the last super that were not completed. They also had to be fed a little in the fall; but they are in good shape at this writing. This queen is hardly equal to eight frames; but I regard her as one of the most valuable ones that I ever owned.

Sometimes we see reports of queens that will keep twelve or even fourteen frames full of brood, and their bees store a large surplus. I have had two or three such queens; but they are very rare, and hard to get; and if we could get them, would they be any better? Suppose we had queens that would lay as much as two of the best ones we now have; could we get any more surplus for the same number of workers, or per frame, than we now do? I do not believe we could, from my experience. I believe that, after a colony gets to a certain strength—a strength with the right kind of queen—the eight-frame hive gives ample room to develop, and they will store as much or more for the same number of workers as one much larger; and I had much rather produce 200 lbs. of honey in two eight-frame hives than I would in one sixteen-frame hive.

Some of the advocates of large hives tell us that bees in such hives will raise a good many more bees during the latter part of the season, and thus have more bees for winter; and that, such being the case, they will winter better and build up faster in the spring. I will admit that colonies in large hives of twelve or fourteen frames will raise more bees at a time when there is nothing for them to do. This is why colonies in big hives do not store as much surplus. It takes a good deal of honey to raise and keep these extra bees over winter—enough so that, in large apiaries, it would amount to \$100 or more; and with me they generally die off in the spring before they have done much if any good. But I winter in cellars altogether. In outdoor wintering it may be quite different, and the same may be true of deep frames. I have better success in wintering with bees on the standard frames than I do on those that are deeper.

The past winter was, for certain reasons, very hard on bees in this locality, whether they were in cellars or outdoors; and at present some of the strongest colonies that I have are in eight-frame Dovetailed hives; and I have colonies in hives of many shapes, styles, and sizes—many more than I shall next year, if the present season proves a good one.

There has been considerable comment in the past year or two in regard to the best style of frame. I use and prefer the Hoffman. It is not perfect, by any means; but I have tried in a small way nearly every thing in the shape of a frame that has been offered in the last few years, and for the rapid handling of bees the Hoffman is ahead of any thing I have tried yet. Still, there are many who do not like them. In talking with a bee-keeper last winter he said he considered them a great nuisance, as it was so much work to dig the first one out. He was using the ten-frame hive, and there was no room in it for a follower-board. I do not use the Hoffman in ten-frame hives, but I can well understand that, without the extra space and follower-board, as there is in the eight-frame hive, they would be a nuisance. In my opinion the ten-frame hive should be made wider, and the extra space in the supers could be filled with a board. But you have made an improvement in narrowing the ends of the top-bars, and in having the metal rabbets project up behind the ends of them. Most of those I have, the frames are the same width at the ends, and the metal rabbets do not come up back of them, and I have more trouble with propolis being stuck on and between the ends of them and the hive than I do on the V'd edges; but the way you are making them will, I think, nearly if not quite overcome this; still, the way mine are, I can handle them much faster than I can loose hanging frames, or frames that are hung on metal rabbets and spacers combined; for with the latter we have not the lateral motion so necessary for the rapid handling of frames. The former have it, but you can not use it with two or more frames combined, as you can the Hoffman, on account of smashing bees, and occasionally a queen also.

Southern, Minn., May 6.

[This I consider to be one of the strongest and best articles we have ever received, and I think most of our readers, after perusing this carefully, will be convinced that the eight-frame hive is and should be kept the standard. Mr. Davenport is a very large and extensive bee-keeper, and his statements can be taken as in some degree authoritative.

Regarding the Hoffman frames, I might say that the article on that subject in the editorials was written before the above came to hand. But it can be seen how nearly Mr. Davenport agrees with what I have said regarding the rapidity with which Hoffman frames may be handled. It is indeed true, that, to handle such frames properly, it is necessary to have a removable follower-board. The ten-frame hive ought to have been a little wider; but as it was standard in width as we send it out, we could

not very well change it; and we did not at the time, and do not now, think that such size of hive will ever be universally adopted.

I believe we have the Hoffman frame down now where it will not have to be changed or improved. The narrowing-up of the ends, while it facilitates the handling of the frames themselves, does away with a great deal of the propolis attachment at the ends. I find that, as friend Davenport says, the Hoffmans are held more by propolis attachments at the ends than by the uprights along the V edges; but having narrowed up this end, that sticking propensity is reduced to a minimum.

It is true, the Hoffman frames are not perfect, but neither is any other good thing perfect; but I believe it comes the nearest to filling the bill for a general all-around brood-frame; and the great beauty of it is, it is everybody's property. All can make and use it.—E.D.]

HOW THE BEES WINTERED AT DR. MILLER'S.

THE NECESSITY OF A BEE-FLIGHT BEFORE PUTTING INTO THE CELLAR.

By Emma Wilson.

Last fall the exceedingly good weather during the month of October fooled us into leaving our bees at the out-apiaries so long that we were caught napping at last. The weather suddenly turned very cold, and the bees did not have an opportunity for a good fly before they were put into the cellar. October 31st the first two loads from the Wilson apiary were brought home. Nov. 1st all were brought home from the Hastings apiary. Nov. 2d being a warm day, all these bees had a tolerably good fly. The last two loads of bees were brought home from the Wilson apiary Nov. 3d. Nov. 5th these last bees were flying, with the thermometer at 40°, while the other bees remained quiet in their hives. Nov. 20th the bees were put into the cellar. They had been through two very hard freezes, with the thermometer at 7 to 10° above zero, with 2½ inches of snow on the ground. We disliked putting them into the cellar without a good fly, but did not dare to leave them out any longer. If we could have foreseen the future it would have been better to leave them out until Dec. 21st, as that was a nice warm day. And it would have paid us well if we had carried them out for a fly on that day and then carried them back again.

About Jan. 10th the house cellar commenced to smell bad, and two of the strongest colonies were pretty badly daubed.

March 18th was a nice day; and as many of the colonies were in such bad condition we concluded to take them out for a fly, even if we had to carry them all back again. There were 110 colonies put into the house cellar. Of these, 94 came out alive and 16 were dead, and 21 more colonies have died since taking out. The house cellar contained the Wilson and Hastings bees. All of the Hastings bees came out alive, and 100 per cent of them are alive at the time of writing. Those that died from the Wilson apiary,

as nearly as we can make out, were all from the two loads that were hauled last. In the Wilson apiary the colonies were much heavier and stronger than either of the others, it being the one apiary that required little feeding for winter. Now, what caused the mortality? It seems a very plain case that it was the failure to have a good fly after being hauled, for that was the only difference between those two loads of bees and the rest, as they were wintered in the same cellar under exactly the same conditions. I guess we won't be caught napping again. No bees of ours will be likely to be hauled as late as November hereafter.

April 4th we carried the bees out of the shop cellar. They belong to the home apiary. They were in fine condition when taken out, and to all appearances could have remained some time longer in the cellar, without injury. Of the 89 colonies put into the cellar, two died.

Marengo, Ill.

[I take it that your bees wintered perfectly, with the exception noted. I should not have supposed that the lack of a good flight just after being hauled home, and before putting them into the cellar, would have made all this difference.—ED.]

CALIFORNIA ECHOES.

By Rambler.

Many standard appliances used in the East are in but little use here. The bee-tent is a valuable adjunct to the apiary, but we seldom find one in California.

Messrs. Gemmel and Alpaugh,* of Canada, made a host of friends while here. We should like to annex them to California. It would lengthen their days of usefulness, and give us two more live bee-keepers.

In the last *A. B. J.*, Mr. Dadant thinks the new forage-plant, sacaline, is a honey-producing plant. If it proves true, it means much for California, for just now there is much talk about introducing it into Southern California; and if New Mexico can grow sainfoin, California surely can. Every bee-keeper who has a spot of ground upon which to test these plants should sow the seeds this year.

The Hon. J. M. Hambaugh, of Illinois, sojourned for several weeks in California; and in summing up his observations in a recent issue of the *American Bee Journal* he said, "The half has never been told." When you consider that several persons have attempted to throw doubt upon the statements of such writers as Prof. Cook, Dr. Gallup, and the Rambler, the above from Bro. Hambaugh is truly helpful. We have said much about California; but, remember "the half has never been told."

There is much said recently in the *American Bee Journal* about the practice of spreading brood in the spring, the majority taking ground against it. It is very safe advice when

applied to the bee-keeper in the cold corners of the East; but here in California the spreading of brood can be indulged in with but little danger to the colony, and it is largely practiced here in the spring. It is safe to say that all of the leading bee-keepers do thus enlarge the brood-nest, and equalize until the honey-harvest commences. It pays in dollars.

Please allow me to return thanks to the "Ladye Faire" who sent me that "confusion" of poetry. I am looking with much favor upon the fair sex just now, and am poetically disposed; and, being a lonely bachelor, I have been in a deep study over the following for some time:

"Fact is," said the one bee-man, "I married because I was lonely as much as for any other reason. To put it tersely, I married for sympathy."

"Well," said the other bee-man, "you have mine."

Eastern people come to California for various reasons—some for their health, some to engage in fruit culture, some to produce honey, and some to fill in the various other industries. Nearly all of these classes do well. They very sensibly consider that this is a new country, and it requires time for development, and they will endure a little hardship at first, in order to reap the advantages later; and, speaking of bee-keepers, there are hundreds of them who have made money out of the business, and thousands more will do the same.

There is a class of people, however, who arrive here from the East, expecting that every breeze is balmy, every sunbeam evenly balanced between heat and cold, and that golden nuggets are found in every sandhill. Owing to the fact that we do have disagreeable climatic features, and sometimes a failure in crops, precious little loose gold, and now and then a real bad real-estate man, this class of enlarged expectancy soon shake the dust of California from their feet, and seek the East, howling their grievances to high Heaven. We look around us and expect to see the whole of the State sink; but, no; she still waves; and the evidences of prosperity—growing towns, thriving communities—lead us to look with pity and a derisive smile upon the rantings of the mistaken emigrants.

Moral.—If you are doing well where you are, are respected, healthy, and passably contented, by all means stay there. If you have poor health, and \$1000 or more to invest you will do well to come to California. If you are along in years, remember what Dr. Gallup says: "California is the old man's paradise." My advice at all times is, to look well before you leap.

Mr. Gee and myself find the progeny of the queens we got first from you to be far better honey-gatherers than the other bees we have had. Mr. Gee has four strains (New South Wales bred), but he gives the palm to yours, both last year and this.

Minto, N. S. W., Aus., Dec. 24, 1894. P. D. PAGE.

WAX.

THE QUALITIES AND SOURCE OF WAX.

By Karl Rudolph Mathey.

Beeswax is a substance which is produced the world over by the various members of the *Api-dæ* (bee) family. Opinions vary greatly as to whether bees obtain it from the different kinds of sap which they find on certain flowers which serve them as food, or whether the pollen of such plants furnishes the requisite material. Wax itself may be considered either as a secretion or as a separate product; for when bees are quiet in their hives the wax may be seen in the form of minute scales, exuding from between the little rings of their abdomen. The worker bees either take these scales up from the bottom of the hive or else they receive them directly from the bees and form cells therewith.

Many bees are kept in European countries—Austria, Germany, France, Russia, Spain, Italy, and Turkey; and these countries furnish the main part of European beeswax. And, too, the Orient, especially Persia and Asiatic Turkey, furnishes considerable amounts, to which may be added the yield from the East Indies, Japan, China, Africa, and America, though not all the wax from these countries is designed for European consumption. German wax comes from North Germany, from the heathy regions of the lower Elbe, from Hanover, Holstein, East Friesland, etc. In Middle Germany it is more particularly from Thuringia (a part of Saxony) that much good wax is produced; Bavaria, especially Mittle Franken; then Wurtemberg and Baden have, by careful bee culture, produced a superior wax. German wax forms no article of commerce, as it is used mostly in home consumption. Austrian wax, Bohemian, Moravian, Silesian, and that from Bukovina and Poland, are ranked as among the best kinds. The wax of Bohemia, Moravia, Silesia, and Galicia, is among the softest. Recently two kinds have been noted—the West Galician, having a strong odor of fir-tree rosin, and that from East Galicia (Bukovina), varying in color from red to brownish-yellow. It has a fine odor and considerable firmness. As buckwheat is a prominent plant for bee-pasturage in these regions, the wax produced therein is of the best, as is the case in all districts where this cereal is grown in sufficient quantities.

Hungary and its surrounding country produce much wax; also the region around Fünfkirchen, and especially Banat, with its rich fields. Siebenbergen sends much wax to the Buda-Pest market, and finds there in all cases willing buyers. Illyria (Carniola) and the Tyrol, and the country around Klagenfurt, furnish wax at all times, against which the Russian wax offers no competition, on account of the unsightly shape in which the latter comes. The best kind of wax known is the Bosnian—even better than

the Turkish. But it is the dearest, and the reddest in color.

All countries which use much sweet (and that is especially the case with Turkey) make much use of honey, and pursue bee-keeping with particular zeal and scrupulous care, and hence are in condition to offer to the world a wax of surpassing excellence in quality. Almost equal to the Turkish wax is that from Greece, whether it be from the mainland or from the numerous islands of that country. The French follow bee-keeping with the greatest assiduity. Brittany and southern France furnish the best wax. Burgundy, Landes, Normandy, and the regions around Bordeaux, produce inferior kinds of wax; but it does not appear on the market, as it is all used at home, and considerable quantities are even imported. In Paris there are several large firms that deal in honey and wax exclusively; and large wax-bleaching establishments, with hundreds of workmen, are engaged in this business. Spanish wax, in blocks weighing two or three pounds, is but little sought after in comparison with the French. Apiculture in Spain is in a rather primitive condition. Italy produces, in Sardinia, Lombardy, and Venice, considerable quantities of wax, and exports some, notwithstanding the great amounts used at home.

Wax, as produced by the bees and worked into comb, is snow-white; but that which comes from the hive, separated from the honey, has, on the other hand, a yellowish cast, varying in intensity. It is generally furnished in level cellular honey-combs by bee-men, from white to dark yellow, or now and then even a grayish yellow. It has a granular and generally shelly appearance where broken, showing a crystalline structure. At a low temperature it is brittle; but the warmth of the hand renders it soft and yielding, in which condition it can be kneaded. It has a slightly spicy taste, and does not stick to the teeth when chewed. In water or cold spirits it is not soluble; but in boiling alcohol it dissolves readily. On cooling, however, most of it returns to its original condition, so but little of it remains in solution. Sulphuric acid, ether, benzine, and spirits of turpentine, as well as most of the etheric oils, dissolve it completely. It admits of combination with most fats and fatty oils, in all proportions, by melting.

The specific gravity of pure beeswax is from .965 to .972. Its melting-point lies between 143 and 145°, and it becomes hard again at about 136°. If a higher temperature be applied, the wax is entirely decomposed, and vaporizes, but leaves no perceptible acrolin odor.

The coloring-matter in wax bleaches best in full sunlight. Bleached wax is found on the market in round, thin, translucent sheets. It has a mildly rancid smell, no taste, and melts between 147 and 152°, having a specific gravity ranging from .970 to .976, but preserves in other respects the original properties of yellow wax.

RAMBLE 132.

BEE-KEEPING IN LAKEPORT.

By Rambler.

When we pulled out again from our camp the added factors to our cavalcade attracted much attention. The people who were lounging around the springs cast curious glances at us as we rolled out of sight through the dust. Susan B. formed a cordial attachment to our ponies; and whenever we would get beyond her vision her shrill neighing reverberated up the mountain sides. No, Susan B. was not wind-broken, even if she was old and some of her teeth loose.

We traverse Cobb's Valley, and meet many new features on the way. This valley seems to have several fine ranches which were evidently a sufficient support, without living off the tourist; but we discovered that the tourist was the legitimate prey of even the ranchers. Here in the pretty shady Glenwood we had to pay 20 cents per loaf for bread. The postmistress of the nook was real pretty and sociable, and was fully as well posted in relation to roads and distances as the village blacksmith; and while she sold us stamps and bread she gave us much valuable information. Bro. Pryal wanted to camp right there and then, at midday. Wilder and I would not listen to such a proposition, and, cracking the whip, swung around the corner out of sight. Of course, Susan B. whinnied, pawed the earth, and whirled around; the postmistress stopped in the middle of a story, and fled to her little office. Susan B. pulled so hard on the bits that Pryal had to let 'er go. This little inkling of our friend's admiration of the fair sex gave us some fears that there would be disastrous results in the future, which, alas! did prove true.

Cobb's Valley was also noted for its delightful camping-grounds, running streams, and shady nooks. At the northern extremity a mountain 4000 feet in height, named Uncle Sam, beamed down upon us. Geologists tell us that Uncle Sam bears the proud distinction of being an extinct volcano. The evidences of volcanic action were visible in the rocks; for here was a whole mountain, not far from Uncle Sam, that appeared to be constructed wholly of black glass.

Our friend the blacksmith again gave us much valuable information. This blacksmith's impressions of California were peculiar. Southern California, he said, lived off the eastern tourist; said tourists are naturally stingy, and spend but little money; consequently the south end of the State is not prosperous. Northern California, on the other hand, depended upon the San Francisco and Oakland tourist, and they spent their money with reckless freedom; therefore this portion of California was the more prosperous. The people and the towns, however, belied his statements, for the song of

hard times was loud and long; and now and then a town was in the fatal stages of dilapidation. In Kelseyville were numerous vacant houses with broken doors, paneless windows, and shutters awry. Near this town we met a tourist leaving the country, and he held a very pronounced opinion in relation to the Swiss features, characterizing them as a delusion and a snare.

Hurrah! here is Lakeport, and this time the lake. Clear Lake is 28 miles in length, and 10 wide. Upon its shore we pitched our camp, tired and dusty. Several of those little gasoline-launches were puffing to and fro across the lake, giving quite a lively appearance to its placid surface.

Lakeport is quite a pretty town, with a fine climate. The lake seems to be naturally adapted to the breeding of billions of buffalo-gnats. In the evening, clouds of them surrounded our lantern and persisted upon going to roost in our tent; and in the town the space between windows and the screens was several inches deep



BITES

with dead gnats. The nuisance was, however, only during the evening. In the morning they retired to the tules that lined the shore. And what a beautiful picture our lake presented at sunrise! The air was filled with smoke from forest fires further north; and the sun, as it arose, appeared like a great red ball of fire. The lake, as smooth as a mirror, reflected the sun in a long blood-red pathway across the lake. The moon and its silvery pathway we had witnessed many times upon our lovely eastern lakes, and it has been likened unto angel-walks from earth to heaven; but this blood-red road suggested the pathway of demons from earth to some unknown sphere.

Before entering Lakeport, Mr. Pryal informed us that there must be a progressive bee-keeper in or near town, for one P. J. Moreley had purchased queens from him. Mr. Pryal took a turn into town after we had camped, and found his man. Mr. Moreley was the lead-

ing (and I am not sure but he was the only) harness-maker in town, and bee-keeping he conducted as a side issue.

Mr. M. came from that good but cold country, Sweden, and had been a resident of this country for only five years. He occupied a very pretty residence in the edge of the town, surrounded by trees and luxuriant foliage, and the bees were in neat dovetailed hives placed here and there under the trees; and, though some of the hives were only a few feet from the street, the bees were not troublesome to the neighbors. Mr. M. seems to be a thorough mechanic, and showed us a new kink in putting together the dovetailed hive. A piece of tin bent at right angles, long enough and wide enough to cover the ends of the dovetails, is securely nailed to the corners of the hive. There was no chance for sun and rain to get in their warping effects.

Upon the date of our visit, Aug. 30, the bees were working quite lively, and we were shown quite a number of sections in which the bees were storing a good quality of amber honey. We were also shown combs nicely drawn from foundation, and well filled with honey, which had been inserted in the hive on the 26th, or Sunday, five days previous to our examination.

When Mr. Morley first came to this country he used a hive that was in general use in Sweden. This hive was 18 inches deep, and contained 24 frames. The latter were 14 inches deep and 10 inches in length. From one of these hives he secured 900 lbs. of honey. Having no extractor he cut out the combs containing honey, on Sunday. By the next Sunday

flower, and was of a bad quality. Mr. M. finds a home market for his honey, selling his comb honey for 25 cts. per lb., and the extracted for 10 cts. Mr. Pryal was pleased to be introduced to a queen of his own breeding, and showing finely marked progeny. We were also introduced to some Carniolan stock from Mrs. Benton, and a strain of Italians from Lockhart's apiaries. Mr. Moreley had bred the Carniolans in Sweden, and had much experience with both races; and it was his opinion that, for business, the Italians were far superior to the Carniolans.

Mr. M.'s smoker was of that kind which causes some controversy and any amount of ugly comment. It has been described as follows:

"A little roll of tobacco-leaves with a fire at one end and a sucker at the other," or the cigar. Mr. M. had a polite way of wafting the smoke over the bees. They understood the plan, and were handled without gloves or veil.

Mr. Moreley would be a successful apiarist upon a larger scale; but the transforming of leather into horse-trappings seems to have the greater attraction, and in that business he seems to be successful.

Lakeport is some distance from railroad transportation; and this, with the dark grade of honey usually obtained, would probably deter the apiarist from making honey a specialty in this location.

Mr. M. kept abreast of the times by being a subscriber to GLEANINGS and the *Review*; and we had a very enjoyable visit with him.

We stopped a day in Lakeport, in order to allow Mr. Pryal's propensity to fish to have full play. His efforts piscatorial resulted in about as many bites as Wilder's signs of deer. I was pleased that my traveling-companions mounted such opposite hobbies; for when they did both mount the same hobby later on, ruin and devastation marked their pathway.

THE T SUPER, AND WHY THERE IS NOT A DEMAND FOR IT.

WHY SOME THINGS GO AND OTHERS NOT.

[I would explain to our readers that A. B. Anthony has made some suggestions regarding the T supers; but as Dr. C. C. Miller has had more experience along that line I forwarded them to him for reply. The doctor sent his reply to me, and I have in return again sent them on to friend Anthony. I have not space to give the whole of the discussion, but I give the "tail end" of it. Dr. Miller's comment on a previous letter of Mr. Anthony's appears first.]

If I understand Mr. Anthony correctly, he proposes to change the length of the brood-frame so as to accommodate more perfectly the super. Then he will have a super $\frac{3}{4}$ inch longer inside than four sections, and fill up that space with wedges at each end, or with a wedge and follower at one end. In actual practice I find no great difficulty in having a super shorter inside than the brood-chamber. He can tell



MORELEY'S SMOKER.

the bees had built new comb and filled it with honey; and the cutting-out process was performed again. The operation was continued through the entire season, with the above results. The honey was gathered from wild sun-

better after trying how he will like the proposed change, but I'm not sure there will be any real gain. If I am not mistaken, the main thing he is after is to have the sections crowded close together end to end, so there shall be no space between them. That, of course, is to avoid the crack for bee-glue. Now, there can be no advantage in that over the plan of having the little top separators crowded between the sections; for what difference can it make to a section whether it is crowded tight against another section or against another piece of wood? But it may be more satisfactory to him to put the matter to actual test.



At A is shown the close fit between two sections, and at B the top separator between. If they are crowded equally tight together, what chance is there for bee-glue in one case more than another?

C. C. MILLER.

Marengo, Ill.

[The following is the reply by Mr. Anthony. The experience that I have had personally with T supers inclines me to agree with Dr. M. rather than with Mr. A.]

Mr. Root:—Really I think the doctor must have been sleepy when he replied to the last article of mine. I did not mean we should change the length of the L. frame to accommodate the super. I only said, "Let us suppose our frame is 17 inches long." I did that hoping that E. R. Root would notice it as one point in favor of a shorter frame, as he had somewhat expressed himself as wanting to hear from me on the subject of hives, and because my own brood-frame is just that long.

I think if any one would try to find the cause for the $4\frac{1}{2} \times 4\frac{1}{2}$ section coming so largely into use, the first and principal reason would be on account of the length of the L. frame. The doctor says there can be no advantage over having little top separators between sections, and that there would be no difference between a section crowded against a section, or one section against another piece of wood. He forgot that we were making the super suitable for open-side as well as closed sections. Separator stuff closed the opening along the top of sections; but with the open-side sections there will be all that space under the separator stuff and over the T tins to be filled with propolis.

Mr. Root thinks that the T super is so little used now that the subject might as well be dropped. I am sorry that he thinks so. Almost all living kind seems to have its leader or authority to look to, and it is right. It is in E. R. Root's hands that most of the responsibility lies as to what shall be adopted by the beekeepers of the United States. But very few people are capable of making the wisest choice as to what is best for them to use; and some of

the few who are, prefer to use what the rest do, so as to be in good company. It only wants Mr. Root's sanction, and in three years it will be all the go. If Mr. Root would only give the matter a little close attention, and call others' attention to it, I think they would realize the value of its simplicity, its cheapness, and adaptability to the different widths of sections that people want.

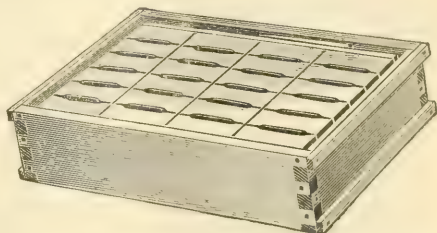
If formed as I have advocated, I am sure they could put in and take out sections quicker and easier than in other supers of this day. The one great necessity is to have one and the same thing fill the wants of all. I have seen the time when I was out of sections, and could have bought of a neighbor bee-keeper; but his width of sections would not fit my supers. Also the time when I could have accommodated my neighbors had it not been for the same difficulty.

Looking around us at other things, we see that the wheels of all vehicles run in the same rut; all locomotives on the same track; all axes fit the same handle; all kettles fit the different stoves; plows turn the same furrow, and machine after machine goes the same round in the field. Progress must have its way; and to look in the same line down to this very year we find the Columbia bicycle folks coming out with a pump-and-valve attachment that fits other wheels and what is coming to be the standard. And so should bee-fixtures have the same combined fitness that is found in other things in these more modern days.

A. B. ANTHONY.

Coleta, Ill., April 17.

[Now, friend A., you intimate that whatever I push will surely "go." I plead guilty to having started the use of some new implements; but these are implements of real merit. I have tried to push some other things that did not go that I thought had real merit. I think the Pratt automatic hiver, for instance, under certain circumstances, might prove a valuable assistant in the apiary, and it did indeed do well for us. I pushed it in the catalog and in the journal; but it did not go at all. And, again, inasmuch as yourself, Dr. Miller, and some others, think the T super should not be crowded out of sight, we have put in our catalog a better illustration, and improved it so it can be used on the Dovetailed hive, and yet take $4\frac{1}{4}$ sections. Here is the cut.



By cleating the ends, shorter frames are unnecessary; so also are handholes. Well, although we have given it more prominence, and improved it so that it leaves nothing to be de-

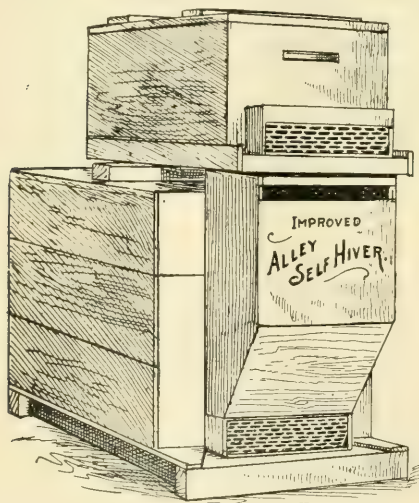
sired, it doesn't go, and I doubt if it would were we to say it was "just as good."—Ed.]



COMBINATION QUEEN-AND-DRONE TRAP AND SWARM-CATCHER.

By Henry Alley.

There is a demand by a large number of beekeepers for a simple, practical, and cheap device for either hiving or catching a swarm of bees when it issues. A practical self-hiving arrangement has not as yet been devised, as experiments the past few years have demonstrated. I think the device here described, for catching a swarm of bees, will prove not only practical, but will prove satisfactory to all who try them. The arrangement is simple in construction, inexpensive, and, though not a self-hiver—that is, the bees are not hived in the



hive they are to occupy as a permanent home—yet the swarm is caught and hived till they can be placed in a hive or otherwise disposed of as the apiarist desires.

The swarm-catcher is used in connection with the Alley queen-and-drone trap, and can be used on almost any style of hive, and fastened thereto with little or no trouble. Some of the advantages of this device are, that the apiarist can go from home one or more days at a time, and rest assured that, should his bees swarm during his absence, they can not decamp, and they surely would be found in the catcher—a fact one can know by a mere glance at the catcher and without an extended examination

either. In case a swarm is found in the catcher, it will require not over one minute's time to transfer the bees to a hive.

Although the catcher is used in connection with the queen-trap, the trap will not have to be altered in the least to connect it with the catcher. When the catcher is not needed for catching swarms it can be removed, while the trap can remain in position to trap drones or a queen as the case may be.

This arrangement in no way interferes with the bees while they are at work, and would hardly be noticed by them, even when first put on the hive.

This arrangement can be used as a self-hiver if any one so desires. All that is needed is to place a hive of combs over the catcher, as seen in the cut, or frames having starters in them, connecting the catcher and hive by an opening direct up through the top of the catcher and bottom of hive. In my opinion this arrangement would come nearer a practical hiver than any device yet described in the various bee-publications.

And now, friend Root, one word about the improved queen-and-drone trap. Those who have not used the improved trap know but little about what a perfect queen-trap is. Unlike the old-style trap, the new one has metal in the back side as well as on the front. The bees while at work can pass in or out through any part of the trap. There is no such thing as killing bees by being caught in the trap. Unless care was taken in placing the old-style trap on the hive, a colony of bees would be smothered. Not so with the new style, as there is no way the entrance to the hive can be closed by the trap, and the bees can pass up the back side of the trap, and pass out or in. The trap as now arranged does not prevent free ventilation of the hive during the hottest weather. But in some cases where there were very large colonies the old-style trap did not admit of sufficient ventilation.

Wenham, Mass.

[Perhaps the readers will understand the swarm-catcher a little better when I say that the device is simply an ordinary Alley trap, the upper compartment of which has been enlarged to take a large swarm, and hold it for a day or two till the apiarist can give it his special attention. The hive on top, with the Alley trap, as shown in the cut, is not necessary when the device below is used simply as a *swarm-catcher*, but only when used as a *self-hiver*. I have no doubt the arrangement will work as Mr. Alley says.—Ed.]

GOLDEN'S BEE-FEEDER.

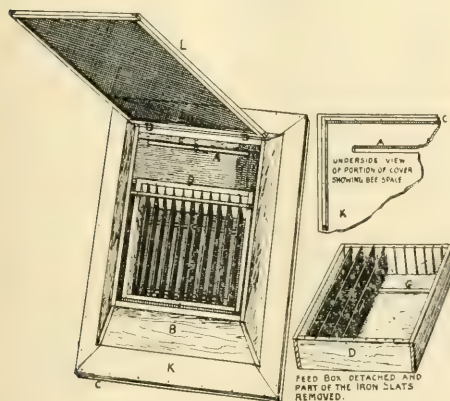
By J. A. Golden.

Mr. Root:—Having shipped you one of my combined hive-covers and bee-feeding arrangements, specially named bee-feeder, permit me to give you a short description of the device and

its advantages over any other, so far as my experience goes. In doing this I do not wish to be understood as having any new-fangled dish or pan to hold the syrup, more than any open-top vessel.

The special features of my invention, then, are, first, a brood-frame cover provided with a bee-space over the top of the brood-frames, permitting the heat from each cluster to unite, as from one compact cluster, during cold weather; also, bees are not required to travel to the bottom or around the extreme ends of combs, to pass from one comb to another to feed; and as this cover is made of thin lumber, it admits of ample ventilation; thus sweat and moldy combs are overcome, which undoubtedly create disease, which so frequently occurs when oilcloth and other substances are placed in contact upon the frames.

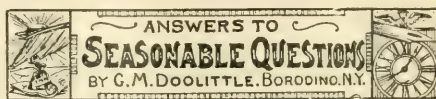
Second, the cover is provided with a receptacle or box made permanently open, the cover having a wire-screen cover fastened by two small hinges. Upon the board, near one end, inside of this box, a slot $\frac{3}{8}$ x 6 inches is cut, permitting the bees to step from the brood-frames right into the receptacle, in which any open-top feeding-utensil is placed, and is always ready to receive feed, either for stimulating brood-rearing, cell-building, winter stores, or filling out unfinished sections at the close of the honey-flow, thus doing away with gathering up feeders, smoking the bees, lifting lids, pulling off oilcloths, exciting bees, often subjecting the young tender brood to a blast of cold air, the latter being detrimental, as every rational bee-keeper knows, and the tired apiarist is relieved from the arduous work required in the above, besides frequently preventing unwelcome visits from robber-bees.



I wish to say, before closing, that, when feeding extracted honey back to finish sections at the close of the honey-flow, have a bee-entrance at each end of the feed-receptacle box, and place a feed-dish between. Thus the bees will do the work in a shorter time, having ample

and shorter space to travel; and I also find, by thinning the honey somewhat, the bees can perform the work in a much shorter time; and after supers have been taken off, the covers are replaced upon the hives, and there remain.

Reinersville, O.



DRONES AND SWARMING.

Question.—I am told that bees never swarm unless there are drones in the hive. Now, will it keep my bees from swarming if drones and drone comb are kept out of the hive?

Answer.—There are a few bee-keepers who argue that, if all drones and drone comb are kept out of the hive it would be, to some extent, a preventive of swarming; but with me I have failed to see that this matter of drones has had any thing to do with the matter of swarming whatever; for I have several times had hybrid colonies in my apiary, from which I have taken all drone combs, and not allowed them to rear drones, because I did not want my young queens to meet such drones; yet, so far as I could see, these colonies swarmed as promptly as did those having drones. I said, "from which I have taken all drone comb," and meant just this; but will explain that, to keep all drones out of a hive, means the opening of that hive every 20 days, and decapitating a few hundred drones in their cells; for where all drone comb is removed, drone-cells will be built in all sorts of out-of-the-way places, for I have yet to see the hive containing a populous colony during June and July that had not a few cells of drone comb in it; and I do not believe that these few cells can be kept out; for worker comb will be cut down and drone built in its place if a few cells can not be gotten otherwise. From my experience in the past I would say that it is not practical to try to keep all drone comb out of any hive, but, rather, have just one frame in each and every hive, having from six to twelve square inches of drone comb in it, and have such comb stand in a certain place in each hive, so that the apiarist may know just where it is; then every twenty days open the hives from which it is desired that no drones shall fly, and decapitate them, thus making a sure thing of the matter, and fully satisfying the bees. In this way you will not have a few drone-cells scattered all through the hive, nor will you have to use a drone-trap at the entrance to catch undesirable drones. If this comb with drone-cells is placed near the outside of the hive, and the drone comb is near the top-bar of the frame, you will not have to decapitate the drones more than three times during the season, for the queen will be slow in

depositing eggs in it; and when honey comes in, the bees will fill it with honey, thus keeping the queen from depositing eggs in it.

SULPHURING HONEY.

Question.—I see by GLEANINGS for April 15th that some have trouble in sulphuring honey on account of turning the combs and wood of the sections a yellowish green. How do you prevent this?

Answer.—This is one of the nice points, and one on which I did a good deal of experimenting in the past, after nearly ruining the first lot of comb honey I tried to sulphur; for at that time no one had given any caution regarding this matter. Honey should be stored in a small room where the temperature can be kept high, so that it can ripen out after the sections are taken from the hive. The sections should be stored on scantling, placed in such a way that the fumes from burning sulphur can pass between the sections all through the whole pile, if signs of the larvæ of the wax-moth are found. The right quantity to burn to kill the larvæ I found to be, after many trials, three-fourths of a pound to every 200 cubic feet contained in the room. Put some ashes in an iron kettle, and on the ashes a few live coals; pour the sulphur on, shove under the pile of honey, and close the door. Now leave for about fifteen minutes, when the door should be opened and the smoke let out. If too much is used, or the room left closed too long, we are sure to have the sections and combs discolored. Really the best plan is to have a window in this honey-room, so that, when the door is shut, you can go to this window and watch the flies, which will collect on it as soon as the fumes from the burning sulphur begin to fill the room. One by one they will begin to be stupefied, and in from eight to twelve minutes the last one will have ceased to move. I used to wait two minutes after the last fly was lifeless, then open the door and window, so as to cause a draft and let the smoke out quick, and after thus working I never failed to kill the wax-moth larva, nor did I ever have any combs or sections colored. That you may not take in the fumes of sulphur yourself, the window should be made so it can be opened from the outside as well as the door. Some seem to think that a red-hot iron dropped in the sulphur gives better results than pouring the sulphur on the coals, as given above; but with me the coals do good work, and are always handy from the cook-stove, as we burn wood in the summer season.

"WHAT SHALL WE DO?"

Question.—Did you read what A. I. R. said under the above heading on page 328 of April 15th GLEANINGS? If so, is such doctrine sound?

Answer.—I do not know that the GLEANINGS friends will allow an answer to this question in this department; but as I believe that Bro. A. I. Root will sanction the "greatest good to the

greatest number," I will venture a few words. The "good Book" says, "If any will not work, neither should he eat," which coincides with Bro. Root's "God surely helps those who help themselves." Then Bro. R. is quite right in saying that "the world owes no man any thing until he has earned it;" but when he comes to advise us not to have any thing to do with bankers, manufacturers, etc., who show themselves greedy and dishonest, I fear he did not stop to fully take in our present situation. His father succeeded in doing what he tells us of "without any help from millionaires," because there were no millionaires in this country at that time; for, prior to 1860, there was scarcely a millionaire in this country, and the legislation of this country at that time gave that father the privilege of keeping fully 95 cents out of every dollar of wealth which he produced from the land covered with woods which he occupied, to use for himself and his loved ones, while the wealth-producers of to-day in this country have to part with 52 cents out of every dollar's worth of wealth they produce, to add to the millions of the few who force up prices by combines, trusts, corners, etc., of the necessities of life, that they may amass fortunes that no man can comprehend, out of the toil, sweat, and deprivations of the masses. Fifty-six of the actual necessities of life are controlled and cornered by trusts and monopolies; and yet Bro. Root says, "have nothing to do with them." Abstain from beef, and punish the dressed-beef combine; abstain from bread, and punish the millers' trust; from light, and punish the oil combine; from coal, and punish the coal combine. Is it possible to have nothing to do with these? According to the *Chicago Tribune*, the Standard Oil Co. cleared fully \$75,000,000 in ten days by the recent forcing-up of prices on oil, with not a farthing greater cost of production than before. The coal barons have lately met, and decided that the output of coal should be lessened, and the price advanced 50 cents per ton. The dressed-beef trust have doubled the prices of beef to the consumers in our eastern cities, while the producer of said beef, and the retailer, have to be content with nearly the same pay for the wealth produced by them as before. I can not think Bro. Root fully realized the import of what he wrote when he penned those sentences. "Turn the light a little lower, John, so we shall not burn so much oil, for oil has gone up in price, you know, and all we have to sell brings less. Use as little coal in building the morning fire as possible, John, for now it takes 50 lbs. of honey to buy a ton of coal, while in 1874 it took only 14. Let us economize all we can, for at best I almost fear we shall not be able to meet the rent this year." Such was the conversation heard at a bee-keeper's house one evening not long ago; and it only represents the condition of multitudes of hard-working people strug-

gling for an existence, while the few revel in wealth at their ease, said wealth being wrung from the masses by the legislation of the past. Did God ever intend that a few men, through unjust legislation, should enjoy the good things of this world while the many should suffer? Is it not about time we began to legislate for the masses instead of the classes?

[Friend D., I most heartily agree with the text you quote—"If any will not work, neither shall he eat." But you surely do not mean that every man must necessarily earn his bread entirely by muscular work. Quite a few of the readers of GLEANINGS buy potatoes in the fall, and hold them over till the spring, taking great pains to keep them in good condition in the hope of getting better prices. Now, whether they buy the potatoes in the fall, or raise them on their own farms, they are to a certain extent speculating on the chances of a scarcity in the spring. Whoever furnishes potatoes for seed must be more or less of a speculator; but may not his work be as honest as that of his neighbor who sells his potatoes as soon as they are dug? If the Standard Oil Co. did clear 75 millions of dollars, as you say, in ten days, it was a gigantic gambling operation; and the gambling mania of the present time is one of the most terrible evils that threaten us. You say my father kept 95 cts. out of every dollar, but that we to-day can keep only 52 cts. out of every dollar, etc. I believe I have read enough in regard to the matter you allude to, to understand it pretty well; and if I am correct there are only comparatively few people who agree with your statement. You suggest that the times are terribly hard for poor people. Suppose I should take the time and space to make out a list of the things that are cheaper for poor people than ever before. We should all consider that, when any thing gets to be very cheap, it is bad for the producer, but a blessing to those who have to buy. The farmer gets but a small price for his wheat. At least one consequence is, that every humble home can have bread cheaper than ever before. I would not abstain from beef; but I would buy it from my nearest neighbor who has beef to sell, and so with bread. If the miller is greedy and dishonest, I would have a little mill of my own. I have found these little mills in many homes during my travels; and they have proved to be a great economy and comfort. I never found any better bread, to my notion, than that made from home-made flour. There are men who produce both coal and oil who are not in any combine, and refuse to enter one. Can we not do something, at least, by way of encouraging them? You speak of "hard-working people struggling for an existence." All my life has been spent among hard-working people, and in many respects it seems to me they are having a pretty good time. Wages run from \$1.25 to \$1.50 per day, and almost every thing that a workman has to buy is cheap and good. Of course, there are times and seasons when certain things are away up; but with the great variety around the most of us, can we not select things that are reasonable? I have no sympathy at all with the few who "revel in their great wealth, and live at their ease;" and may God forbid that our crop of millionaires should continue to increase.—A. I. R.]

A CORRECTION.

On p. 344 of last issue, second column, third line from the bottom, it reads "lessens the first cost of the brood-nest." It should be first cost (first time filling the combs).

H. R. BOARDMAN.



M. C. D., O.—I should judge from what you say in your letter that your bees are afflicted with what is known as dysentery. The only cure I know is fair and warm weather.

A. S. M., Pa.—It is evident from your letter that the bees you speak of as crawling about and having swollen bodies are affected with the disease known as bee-paralysis. I know of no satisfactory cure for the disease. Sometimes removing the queen seems to remove the trouble; but in many cases it does no good whatever. If you have very many other colonies, and these bees do not get any better, I would recommend destroying them entirely.

M. L. B., Ill.—We are now using a very much better arrangement—T supers or combined crates, in connection with a honey-board. Wide frames—that is, double-tier—are not used very much, owing to the fact that burr-combs, used with the old-style frames, are apt to hold them down to the frames, making it somewhat difficult to remove them. But wide frames will come out all right providing the modern brood-frames are used in the lower part of the hive.

J. M. E., Ala.—It would take a good many years for basswood or linden trees to yield honey—perhaps twenty. We set out a basswood orchard something over 20 years ago, and it is not yielding honey very satisfactorily even yet. The experiment is rather too expensive to engage in very extensively.—I can not explain to you why some colonies are so much more energetic than others unless it be that the bees come from a more energetic queen. If you have a good queen, some colonies will do better than others, of course.

W. R. B., Ind.—The ants are a serious pest in certain parts of the South, but do not do much damage in the North. I would suggest that you find the nest, stick a crowbar in it, and make a hole about a foot deep in the center of it. Pour into this about ½ oz. of bisulphide of carbon. Tamp the hole tight, and you will have no further trouble from the ants. The bisulphide produces a gas, and kills them almost instantly, the gas permeating all the galleries of the nest.

B. D. C., N. H.—In our A B C of Bee Culture, under the heading of Poisonous Honey-plants, you will find the mountain laurel described as a poisonous honey-plant. I do not know that any deaths have ever occurred from it; but it certainly is not a honey to put upon the market if the report from Dr. Grammer is true, and I have no reason to doubt it, because his statement has been confirmed by others. Under the

circumstances, if you intend to go into bee-keeping extensively you had better locate somewhere else, for there is no doubt that the mountain laurel would yield well, and you might be able to sell the honey; but on the other hand you would be liable for heavy damages.

W. W., of N. Y., inquires how to feed bees in box hives. This can be done very nicely with the Gray entrance feeder shown on page 27 of the catalog we are sending you; or if you do not wish to go to that expense, use an ordinary common pan; pour in syrup made of sugar and water, about half and half, and spread over cheese-cloth. This should be put out in front of the entrance at night, because, if other bees are in the vicinity, it will cause robbing. The bees in the box hive will take the feed all in. Of course, such a plan of feeding would not answer in cold weather, but will do very well in late spring and summer.

J. O. S., Kan.—Yes, the comb in the super that was made last season will do to use this season; in fact, the bees will start in the sections a little sooner if there are a few of them containing a little drawn-out comb made the previous season. When a swarm issues with two queens, if you let them alone one of the queens will probably be disposed of; but if you can catch one of them you will be that much ahead, providing you have a place where you can use her in some other colony. The drones from a tested Italian queen are generally very dark, and to a beginner might appear to be black. You will find the Gault raspberry advertised extensively as formerly. I would refer you to our advertising columns and also to Special Notices.

H. B. H., Pa.—You say that the solution for imbedding wire in foundation in the battery that we send out does not seem to be strong enough, and you desire information. The solution as given in the directions will certainly give good results providing you follow very carefully what is said. After the solution has been in use an hour or so it may be necessary to strengthen it up a little by putting in more sulphuric acid. Put in enough until the battery gives the requisite power. Before you do this, make sure that all wire connections are perfectly clean. Otherwise you will fail to get satisfactory results. You say that you are experimenting with other chemicals. I do not think you will find any thing that will give you the strength of current that bichromate of potash and sulphuric acid combined in the proportions given in our little circular of directions do.

S. H. D., W. Va.—When bees are moved over a distance of three miles there is not the least danger of their returning to their old location. If I understand you, you expect to move them very much further than this. If you have an apiary of twenty-five or even fifty or one hun-

dred colonies I would advise you to have them sent by freight. When bees are moved much of a distance it is customary for some one to accompany them, going right along in the same car. No extra fare is charged for the person in attendance; but as your bees are going a much shorter distance than this, all that will be necessary will be to load them on the car and have some one receive them and unload them at destination. I take it that you are familiar with putting up bees so as to give them sufficient ventilation. There ought to be wire cloth on top and wire cloth at the entrance, and the frames should be fastened securely, of course, if not of the self-spacing type.



BEEES REMOVING EGGS; THAT MISSING LINK.

Do bees remove eggs from worker-cells and place them in queen-cells, and rear queens from them? Yes, they do. How do I know? I will tell you. Some years ago I found a colony in early spring that had become queenless—no eggs or young larvæ, and the bees vainly trying to raise a queen without these essentials. As the colony was small I took away all their combs but one, and then gave them two combs, making three in all, and shoved up a division-board so as to keep them warm. One of the combs given them was well filled with eggs and brood in all stages of development. The other comb contained some honey, and had been kept in an outbuilding during the winter. When sufficient time had elapsed for the bees to have sealed queen-cells from the young larvæ given them I opened the hive to see how many cells they had built. Imagine my surprise when I looked over the comb of brood given them, without finding any sign of building queen-cells or rearing a queen. I thought I would look farther, and lifted out the other combs, when I discovered, on the face of the comb that had been given, that had been wintered in a cold room, a single queen-cell well filled with royal jelly, and a larva in it not yet sealed, which was conclusive evidence to my mind that bees could not only move eggs from one cell to another, but that they could rear queens from them. This is the only instance in nearly thirty years' experience, and much of the time with hundreds of colonies of bees, that I can say positively I knew the bees had moved an egg, and used it for queen-rearing. From this experience I also learned that bees will do very differently at different times, or different colonies at the same time. Their instinct seems to vary in regard to many things, or they seem at times to be guided quite as much by impulse as instinct, which has led me to be somewhat skeptical as

to the value of non-swarmer hives or non-swarmer strains of queens, and devices that depend upon the bees doing every thing just as set down in the books. Indeed, there seem to be as many exceptions to their general rule of conduct or instinct as there are to the rules of English grammar.

J. E. CRANE.

Middlebury, Vt., Apr. 11.



EXTRA pages and an extra edition as usual.

RAMBLER writes that Southern California has started out for a big honey-flow, and that rains have been copious and timely. Extracting has been already commenced, and comb honey is being capped over.

A PAMPHLET, entitled "A New System of Management in Bee-keeping," by James Heddon, Dowagiac, Mich., has been received. Those who are interested in his system of bee-keeping can get the information by addressing the author as above.

I HAVE wondered whether it would be a bad idea to put in every issue a label on the "best article" in the judgment of the editor, as a sort of stimulus to the other correspondents. But then, there would be differences of opinion, and some would feel hurt, I fear.

WE have just received a note from C. P. Dadant, announcing the death of his mother, the estimable wife of Charles Dadant. She died on the morning of May 3, of a tumor of the liver. She was born in France, March 22, 1822, and was married to her surviving husband May 31, 1847, and came to this country in 1863. We feel sure that bee-keepers at large will unite with us in extending their sympathy to the bereaved husband and other members of the broken family circle.

THE editor of the *Progressive Bee-keeper*, while recognizing that good arguments are produced in favor of both the eight and ten frame hive, says that he himself prefers the ten-frame hive with a follower. "With such a hive," he says, "I can contract to six or enlarge to ten frames, to suit circumstances, by simply sliding the follower-board and putting in or taking out the frames. I use more hives with only eight frames in them than I do with more; yet if I were going to establish an apiary now, I would not buy eight-frame hives."

A BEAUTIFULLY illustrated and well-written article on bees appears in the May *Cosmopolitan*, by our old friend and co-worker W. Z.

Hutchinson. A common mistake of old writers on bees, when trying to instruct the general public, is to assume that that public knows more about bees than it really does. But friend Hutchinson has carefully covered the whole ground, and put it in such popular style that the reader is fascinated and interested at once. The photos from which the engravings are made are some of those prepared by Mr. Hutchinson some time ago, and which I have already referred to as being so accurate and clear. Copies of the *Cosmopolitan* containing this article can be obtained at the *Review* office at 20 cts., postpaid. The article is to be continued in the June number.

THE claim is sometimes made that a certain kind of hive will produce twice as much honey as another. Of course, this is not true. One *locality* may produce twice—yes, ten times as much honey as another. One *bee-keeper* in the same locality may, by the right management of his bee force at the right seasons of the year, produce twice as much honey as his neighbor who lets things take care of themselves. A certain peculiar construction of a hive may perhaps enable the intelligent bee-keeper himself to save half the labor. Construction may enable him, also, to secure a little more *marketable* honey, and perhaps a little more in the aggregate. The old statement, that bees will store as much honey in an old nail-keg as in the most improved hive, still stands practically uncontroverted. Improvement in the construction of hives looks, then, not to *more honey*, but to *less labor* in the getting of that honey.

ARE THOSE WHO LOSE IN WINTERING ALWAYS SLIPSHOD AND CARELESS?

In our last issue, in summing up the statistical reports on wintering, after referring to the good showing, I said: "As was to be expected, inexperienced and slipshod bee-keepers did not winter as well as those who read bee-journals." A subscriber, who has taken the journal for a number of years, and has read bee-books, and is supposed to be up with the times, takes this as a personal insult, because, he says, he has lost heavily. I am surprised that he should construe the sentence quoted as implying that every bee-keeper, himself included, who lost heavily, was therefore necessarily slipshod and behind the times. A careful reading of the sentence would hardly bear out this construction. I did not say that everybody who lost was slipshod, but I did say that "inexperienced and slipshod bee-keepers did not winter as well," etc. In other words, the slipshod lost heavily *because* of their carelessness, unlike our correspondent, who lost *in spite* of his care. His mistake was like that of the man who concluded that, as all eagles are birds, therefore all birds are eagles; hence a lark, being a bird, is an eagle. I did not mean to take this much

space to reply to this; but as others may perhaps have felt hurt in the same way, it is only necessary to explain that I did not mean to insult anybody, but was simply striking at *carelessness*, and not at our old friends and patrons.

At the last meeting of the North American, it will be remembered that Dr. C. C. Miller was appointed a committee of one to wait on the Western Classification Committee to see if he could secure some needed reduction in freight rates for bee-keepers and supply-dealers. May 8 last, this committee, assisted by Geo. W. York and Mr. Herman F. Moore, appeared before the railroaders, and were successful in securing one important reduction on honey in barrels, kegs, and cans. An interesting report by Mr. Moore will be given in our next.

MOISTURE IN CELLAR—DOES IT CAUSE DYSENTERY?

The last *Review* at hand contains the conclusion of Experimenter Taylor's experiments in wintering. Among other things his object was to determine whether moisture in excess had anything to do in causing dysentery. The results seem to show that it does not. Mr. T. seems inclined to believe that the disease is due rather to the food, and to the fact that the temperature is such that the bees are not able while in the cellar to pass out of the hive and void their feces. As between upward ventilation and sealed covers in the cellar, there is practically no difference in results. The temperature of the cellar where these experiments were tried was practically uniform, varying only from 43 to 45°.

THIN VENEER FOUNDATION.

A NEW firm, Schmidt & Thiele, New London, Wis., send us a sample of veneer foundation, and request our opinion on the same, in GLEANINGS. It is simply a thin sheet of wood, $\frac{1}{16}$ of an inch or less, covered with cell-walls of ordinary foundation. The object is to give truer combs, and combs that will not sag. We learn that Schmidt & Thiele are going to get out a patent on it. I do not like to discourage a worthy invention, but it will surely be a waste of money for them to invest in a patent to cover this idea, when it is already sixteen years old and over. Sixteen years ago, after having tried paper, cloth, and the like, as a background, with indifferent success, A. I. Root tried the wood; and this is the way he threw up his hat:

I have succeeded perfectly, with a board about $\frac{1}{8}$ inch in thickness; and the only difficulty now consists in getting these boards coated perfectly with wax, on which to make the foundation. For once in the world, we have combs perfectly even, and safe from sagging. You can scrape off the honey if you like, and let the bees build on more; but the boys complain that they can not cut out queen-cells from them.

That was published away back in August, 1879, on page 317 of GLEANINGS. Later on, a more elaborate description was given in our

A B C book; but, like a great many things that promised a great revolution, it died a natural death. In the first place, such foundation can not be made to compete in price with ordinary foundation; and while it prevented the sagging of cells, and made the most beautiful combs, bees would at times gnaw the wax off, leaving the thin veneer of wood; and at other times the veneer has a disagreeable habit of warping, pulling the combs out of true. But I presume that bee-keepers could have got along with this had it not been for the increased expense. While Schmidt & Thiele offer this at less per pound than ordinary foundation, it weighs proportionally a good deal more per square inch; and, after all, the present methods of wiring seem to do away with the disagreeable sagging, and at the same time stiffen the combs fully as much as the wood.

I very much dislike to throw cold water on Schmidt & Thiele's veneer foundation; but at the same time I believe I am doing them a *greater kindness* in showing them what has been done, and that a patent, even if secured, would be valueless in the face of printed matter like the above.

FOUL BROOD IN ENGLAND.

We have just received a copy of the Report of the Committee on the Bee-keeping Industry and Foul Brood in the United Kingdom. It sets forth in a very thorough manner the possibilities in the line of apiculture in the British Isles were it not for the shadow flung on it all by foul brood (which seems to have its own way so far as the law is concerned), before which disease English bee-keepers seem to be powerless. The British Bee-keepers' Association is now trying to have apiculture recognized as an industry, and to have suitable legislation enacted to drive the fell disease from their shores. Our British brethren seem to be hampered in this direction more than we are here, and are more inclined to say, "What can't be cured must be endured." The American version in that case would be, "What can't be endured must be cured," and Canada has about done so. The mother-country is much behind Canada in this respect, where foul brood at present is likely to find its match.

The report was compiled under the supervision of Thos. Wm. Cowan, editor of the *British Bee Journal*, who gives us the following information:

The annual value of bee-keeping in England and Wales would probably reach \$750,000, aside from sale of bees. The annual yield of honey and wax in the same place approaches 4,000,000 lbs. More honey could be gathered if more bees were kept; not enough bees are kept; demand for honey increases with the supply; area of pasture land is increasing. Prosecutions for the sale of adulterated wax have improved the demand for pure wax. The use of

native honey is encouraged as a preference over foreign. The value of the bee as a fertilizer is beginning to be understood. In this respect the value of the bee is greater than the value of the honey and wax. Twenty times more bees than other insects visit the bloom which is absolutely dependent on insects for pollination. In England and Wales there are 20 bee-keepers' associations, with 4104 members; number of hives, 260,000; average per hive, 17 lbs.; wax per hive, 4 ounces. Ireland produced 248,363 lbs. of honey and 3188 lbs. of wax, which is considered an underestimate. It is believed that Scotland exceeds this, but statistics can not be obtained.

A STUDY OF INSECTS.

A SCIENTIFIC treatise on this subject, and yet one adapted to the capacity of the average reader, is what the book named above purports to be. It has 700 pages, the size of this one. It is illustrated with 797 cuts, all engraved for this work by Anna B. Comstock, its assistant editor. These cuts were all made from the creature itself, and certainly leave nothing to be desired, and they are a monument to the skill of a woman's hand. Twenty-two orders of insects are described fully, while the total number is almost beyond count. All of the old bugs peculiar to this country (except hum—) are here seen, drawn with remarkable fidelity, especially the "tree-hoppers," which are certainly funny enough to suggest to the author the idea that Nature must have been in a joking mood when she created them. We can not think of an enemy of any of our garden and field crops which is not here described, with information as to their destruction. The subject of "Beemoths" will be found to be very interesting to bee-keepers, as will also the bee itself, although the latter has had such special treatment by Cheshire, Cook, Cowan, and others as to leave this book in question entirely in the shade, as a matter of course. But it takes us into a world of wonders, and most of these "wonders" are at present the enemies if not the scourges of the agriculturist if not, indeed, of the human race. We know of no book which will better enable us to combat such foes; and to be forewarned is to be forearmed. The scientific names are so printed as to enable any one to pronounce them at sight. As to the author, his name is John Henry Comstock, Professor of Entomology in Cornell University and in the Leland Stanford Junior University; and after that is said, nothing more needs to be remarked in regard to the thorough manner in which the work has been done. The price is \$3.75; postage 34 cts. extra. Printed and published by the Comstock Publishing Co., Ithaca, N. Y., to whom all orders should be addressed.

The work has been adopted in twenty-six colleges as a text-book, and twenty of these are agricultural.

W. P. R.

HANDLING HIVES; THE METHODS OF DIAGNOSING WITHOUT HANDLING FRAMES, ETC.

I MAKE it a part of my business, assisted by a light-weight safety bicycle, to take entire charge of our out-yard. This I have done for the last three or four seasons. While I keep track pretty closely of our home yard, I do not do much work with it except to hive an occasional swarm on Sundays and other days when our regular man is not about. Early this spring, as soon as the roads were fit, I took a run down to our basswood apiary, peered under all the cushions, raised the sealed covers, and made an examination of each colony. I found that they had all wintered, whether under sealed covers or under absorbents, and that notwithstanding they were in a comparatively open field, with the exception of what protection the small basswood-trees afforded.

Again I went down a few days ago, and this time I gave them a very thorough examination. I took along a Crane smoker, a twenty-penny wire nail, and a silk-tulle veil. My object was to determine the amount of brood in each colony, the amount of stores, bees, etc. Now, I can not with my other work in the office afford to handle over every frame. After opening up the hive, with the wire nail I have just spoken of I removed the division-board, then ran the nail between the center pair of brood-frames, and pried them apart. This split the brood-nest perpendicularly in two equal parts, leaving a space of from $\frac{1}{2}$ to $\frac{3}{4}$ inch between them. In some cases I lifted out one frame, and in others I got satisfactory information by simply peering in between the frames. In the latter case, if not entirely satisfied as to the amount of stores I split the brood-nest in another part, and peered down between the frames as before. This usually gave me an idea of the amount of stores. After having satisfied myself as to the condition of the colony, I pried on the outside frame, crowded the whole set of frames together *en masse*, inserted the division-board, and closed the hive up. If there was any thing unusual, or something requiring attention, I laid a brick, or block of wood, on top of the hive.

If, in splitting the brood-nest perpendicularly in two equal parts, and looking down between the frames, I thought the brood looked a little irregular, or scanty in amount, I pulled out a frame to see whether there were eggs. If these were present, and the brood well capped over, and healthy-looking, I replaced the frame, crowded over the other four with one operation, and closed up the hive. I seldom if ever stop to hunt for the queen. If I see eggs I know that she is present in the hive, or at least she has been within a very short time. Eggs are supposed to be eggs for at least three days. But, supposing the queen was killed the day before I examined, I think I should be able to recognize her absence, even if I saw eggs, by

the howl of distress on the part of the bees. Old bee-keepers know what this "howl" or uneasy humming means. It does not *always* indicate queenlessness, it is true; but, with other conditions easily ascertained, it is not difficult to tell whether the hive is queenless, without even hardly handling a frame.

How the divisible brood-chamber can be handled any more rapidly than a good hive containing modern Hoffman frames with V edges, is past my comprehension. I have handled the former somewhat in our own apiary. That is to say, we have had a Heddon hive in our yard for a number of seasons; and I have manipulated that hive perhaps more than any other one hive in our yard. We have also had a Danzenbaker hive in our yard for a part of one season. I have seen divisible-brood-chamber hives handled by bee-keepers who were very enthusiastic over them; but, taking it all in all, I think I can get a more satisfactory knowledge with a given number of hives containing full-depth Hoffman frames in less time than from any equal number of horizontally divided brood-chamber hives I have ever seen or read of. I say I *think*. A positive assertion right here—and I refrain from making such a one—is but little short of rank egotism. Individual tastes, ways, and habits of working, will lead to a variety of opinions.

Mr. Heddon and Mr. Danzenbaker, of course, will both think their ways are better, and they certainly have a right to their opinions. Now, why do I like mine (or, more correctly, Hoffman's) better? A Hoffman-frame hive can be split *perpendicularly* in two parts. A divisible-brood-chamber can be split horizontally in two parts; but it will be apparent that such a split does not show brood *surface*—only the *edges* of the combs, and those very imperfectly. A *perpendicular* split does show the *whole surface* of two combs. Then if we remove one comb we have for examination the two surfaces of the one comb besides two surfaces of each of two other combs.

Although I have studied and experimented a good deal, I have never been able to diagnose accurately a colony merely by looking at the top and bottom edges of the combs; but if, for instance, I can see just one frame from the center of the brood-nest, or can see the two surfaces of two combs when a brood-nest is split as I have explained, I can judge—and so can every experienced bee-keeper—pretty accurately the amount of brood in those combs. To test myself, I have repeatedly, after forming an opinion, examined every frame, and I do not know that I have at any time found that I was mistaken in my first impression. Now, then, if it is a fact that the Hoffman-frame hive can be diagnosed as quickly—and I think more satisfactorily than by dividing the brood-nest the other way, horizontally—do we not, by having full-sized frames, gain some advantages? Bees,

according to my experience here, breed better in full-sized frames than in half-frames; and this experience of mine has been corroborated from what observations I could make, where horizontally divided brood-chambers were in use.

Last fall—or, rather, late last summer—we tried one Danzenbaker hive. I know one swallow does not make a summer; but in spite of all we could do, we could not get the bees by any kind of feeding to breed satisfactorily in the two chambers at once. The queen seemed determined to stay in one hive-section at a time; indeed, she would fill out the frames of one section full of brood; but go below or above she just wouldn't. The bees would put in pollen and honey, but there it stopped.

But with the Heddon hive we obtained very much more satisfactory results. Why? The Danzenbaker brood-frame uses thick and wide top-bars and bottom-bars, $1\frac{1}{8}$ wide by $\frac{3}{8}$ thick; but I have found that, between two sections of the Heddon, burr-combs will be built, and this to a great extent completes the two sets of brood-frames. But even this slight obstruction seemed to hinder somewhat the normal circles of brood, when compared with brood-frames solid without any obstructions between. I am, therefore, of the opinion that it would not do to have thick and wide top-bars for sectional brood-chambers; and that, if we are to have anything of that sort, Mr. Heddon's decision for narrow and thin top and bottom bars is about right. But he has burr-combs, and these I won't have—even if a part of the nuisance is obviated by a slat honey-board. Mr. Danzenbaker, in the attempt to obviate these, has possibly run into a snag more serious yet in the use of wide bars.

About this time I imagine I hear Doolittle chuckling, and saying, "There, didn't I tell you bees don't like to go past thick and wide top-bars?" Now, I am not taking any back track yet on this question. While I fear heavy bars between parts of the brood-chamber will not be satisfactory, I know they do not form any obstruction between brood-chamber proper and surplus—certainly far less obstruction than the old-style hive with thin top-bars, burr-combs, and slatted honey-boards; or, worse yet, burr-combs and no honey-boards, said burr-combs stuck fast to the bottom of the surplus.

I have endeavored to give you my honest impressions of what I believe to be true regarding these matters; but I was not quite willing to give expression to them just yet, because I desired to experiment and observe further along these lines. But now that the divisible-brood-chamber hive is being discussed, I think it is well that we look on the side that I have presented. I do not claim to be infallible in my opinions; and if I should change my mind it will be because truth, and an honest purpose to get out of ruts, will force me to do so.



Who then is that faithful and wise steward, whom his lord shall make ruler over his household?—LUKE 12:42.

In order to take the above little text in the sense I wish, let us first commence by supposing ourselves all to be servants to somebody, or servants to the great wide world, as you choose. In a measure I am *your* servant, dear friends, for you expect certain things of me. You have a right to expect them; and if I do not render these services to you faithfully, you have a right to complain. Come to think of it, I rather *like* to get letters taking me to task right in this line. Once in a while somebody says, "Look here, old friend; does this sound just like A. I. Root, or what we might expect of him?" Then follows an extract from some letter I have written when I may not have been exactly in the right frame of mind. Well, if we all recognize, then, that we are all *servants*, I am ready for my little talk to-day.

It is the first day of May, and, as usual, there is a general activity everywhere. Nobody is looking for a job; but a great many, on the contrary, are inquiring where they can get a man or boy to plant potatoes or make garden. Why, everybody is so busy here in Medina that Mrs. Root was telling me of a widow lady who got her garden spaded up and planted by a woman over *seventy years old*. She did it tip-top too. Of course, you know I rejoice in seeing everybody have something to do. Yesterday I met a man from the great oil regions of Findlay, O. He said that, since the recent advances in oil, new wells were being drilled, old ones were starting up, and the manufacturers of drilling-appliances were working day and night with all the help they could scrape up. During the past week we should have been running day and night, could efficient help have been obtained. As it was, we asked those who could bear the strain to put in twelve hours a day until we could get a little ahead of orders. Well, at such a time there is more than ever a demand for not only skilled laborers, but for those capable of taking charge of the unskilled, to see that they do their work right, and that mischief is not done. Above all things, we want *reliable* men. Of course, we can not demand that every man, woman, and child, be at their post invariably; but we do like to have notice, so that provision may be made for absences when it is *necessary* for hands to be away. But a great many people do not seem to have any conscience in vacating their posts.

The most serious annoyance comes where somebody stays away without a word of explanation. Perhaps he runs machinery. Three large boilers are now furnishing steam to do the work. Our big engine is crowded to its utmost capacity, and we have so many men in readiness to fill up any vacancy, and keep every thing moving, that, when they happen to be all well and on hand, it is sometimes a puzzle to find a place for them. Where a man is not running machinery, his absence without any notice throws things out of shape, and hinders those who are depending on him; but it is not quite like having a machine standing idle when somebody away off is urging us by letters and by telegram to hurry up the stuff which that machine is to make. Some people have a reputation for reliability. Oh how I do like that word *reliability*! It speaks of faith and

of hope; and I do not know but it speaks of charity too. What a comfort it is to have reliable people around you! A few days ago Mrs. Root paid me a compliment. Isn't that a strange thing to write about? What do you think it was? Why, she had been talking with somebody who had the blues, and would have it that every thing was "going to the dogs." I came in just afterward, and she said something like this:

"You do not know, dear husband, how thankful I am that you never get the blues. You are always hopeful, always full of life and energy."

Of course, she did not mean to say that I never get tired out. Well, I told her this morning that I wanted to pay her a compliment. The compliment was, that my wife had always been *reliable*. She never failed in any thing since I knew her, when it was a possible thing, not only in keeping her promises, but in coming up to what was expected of her. I do not believe I *ever* knew her to shirk, or play truant. And now if you will excuse me, that is enough of "my home" for the present.

Some years ago a young man worked for me who was a pretty good sort of fellow, but nothing remarkable that I know of in the way of reliability. When our neighbor across the way was short of an engineer, and asked if he could have John for a few days, I let the latter go; and as we were not rushed much at the time, John kept on in his new place. Years passed, and we had a revival in our town. John was one of the brightest new converts. His conversion extended clear to his fingers' ends—yes, and toes' too, I might say. Once or twice it seemed necessary, where he worked, to have some repairing done on their engine on Sunday, so as not to hinder work during the week. John objected. By and by things came around to where it seemed very desirable that we should get John back again, if his present employer could spare him. I went over and talked with my neighbor about it. He did not want to let John go. I was not much surprised; but during the conversation he made a remark something like this:

"The fact is, John is mighty reliable."

I could not help smiling. What an expression—"mighty reliable"! That is pretty strong language, friends, and it paid our friend John a very high compliment. My friend did not say so, but it seemed to be summed up something like this: "John has some peculiar notions, and it is sometimes quite inconvenient to have him refuse to help us when it is very desirable that a little bit of work should be done on Sunday; but notwithstanding all this, John is *mighty reliable*." Mind you, my neighbor did not say just the above, but I have sort o' paraphrased it so as to express about what I have reason to *suppose* he thought.

Now, my dear friend, has anybody ever said of you that *you* were "mighty reliable"? Why, that very fact gave John from fifty cents to a dollar a day extra, year in and year out. He is not as good a mechanic as some other men who do not get the pay he does. He always does his best, however, and he is a *growing* young man. In fact, he could not well be otherwise. Do some of you want to know whether his becoming a Christian made him more reliable? Why, to be sure it did. It would be a funny sort of Christianity that did *not* make a man more reliable. If instead of becoming a *Christian* he had become only a *hypocrite*, then of course it would make him *less* reliable. A great deal has been said about hypocrites; but, to tell the truth, I have never found many of them in the churches. The atmosphere is not congenial.

Let me tell you another story about reliability—

ty. A young man applied to us for work during our dull season. Finally one of my good friends in the teachers' meeting—a woman who has busied herself all her life in looking after the unfortunate—put in a strong plea for this young man. She said he had recently married. She knew that would please me, for I am always glad to hear about good young men and women getting married. Then she said she was pretty sure he either had been or was thinking of taking a start in life as a Christian. When business started up I sent for him, feeling glad I could give him a chance. He did exceedingly well; and every one with whom he worked admired his manliness and energy, and he was soon promoted. In our business councils his name was mentioned, and we had much hope that he would be able to fill some important post with good pay. Before he had been in his new place two weeks, however, a conversation something like the following came up. The foreman of the packing-room, who loads a car almost every day, besides filling no end of small orders, has perhaps a dozen good reliable men immediately under his charge. Well, he said:

"Mr. Root, do you know what has become of —?"

"Why, isn't he at work?"

"No, he has not shown up since last Thursday."

This was on Monday.

"Did he not tell you he wanted to be away, or has he not sent any explanation of his absence?"

"Not a word, and I need him the worst kind."

I immediately went to the time-clerk. She said he had said nothing to her about being away, but came around Saturday night and drew his pay, and walked off. He said nothing about being absent Monday—not a word as to whether he would or would not be back to work. I hunted up his brother, and he expressed surprise. He said he was pretty sure his brother was not sick, and did not know why he should be off. Monday afternoon as I was rushing past I caught a glimpse of somebody, but he did not look up enough so I could be sure who it was. I turned around after I had got past quite a little way, and sure enough it was —. Some time afterward I passed Jacob. By the way, Jacob is now the foreman of our packing-room. Some of our older readers will remember the Jacob at that mission Sunday-school, who used to be so prompt and reliable in having a text every Sunday, rain or shine, and Jacob used to repeat his text so clearly and plainly that everybody in the old schoolhouse heard every word of it. By the way, I wonder if I dare stop long enough to meddle with the affairs of one other "home" to just whisper in your ear. Now, don't tell anybody. Up at Jacob's house they have an *eight-pound boy*. He came to their home last night, the last day of April. I declare! since I have told so much I must tell you that the boy's mother used to be *queen-clerk* in the office.* Now let us go on with the story.

On the day in question, as I passed Jacob I stopped and remarked:

"Oh! I see — has come back to work. What reason did he give for skipping out without saying a word when we were so badly rushed?"

* May be some of you would like to inquire whether Jacob was on hand to look after his gang of men the day he first became father. Yes, sir, he was on hand as usual that day and the day after. He got up very early in the morning about that time, and did considerable rushing about; but he knew the situation of affairs, and stuck to his post right through every working hour.

"Why, he did not say any thing until I overhauled him a little, and then he explained that he stayed out to plant his potatoes; and after the potatoes were planted he went *visiting* a day or two.

Now, may be I have not stated the whole matter as it should be; but in any case I think it illustrates my meaning. I do not know what the custom is in other shops and factories. In fact, I have been feeling for a few days as if I should like to know. Do men who occupy important positions of trust and responsibility stay away to plant potatoes, or to make garden, without saying a word to the foreman of the room, to the time-clerk, or to the man who employs them? If that is the way to do, here in this land of "liberty," I will try to put up with it and not scold. But, dear friends, did you ever consider that this fashion of going through life cuts a terrible slice out of your daily wages—just one operation like the one I have mentioned above? I am very sorry indeed to hurt my young friend's feelings, but in the very nature of things such a proceeding may cost any young man hundreds of dollars before he gets through with it. Every little while somebody is sick. When it comes to the women-folks, somebody gets married (as the queen-clerk did), or vacancies occur. Then the question arises in our cabinet, "Who shall fill the place?" Many names are suggested: but almost the first thing that comes up is, "Is he *reliable*? Will he be on hand when wanted?" You see, with our methods of management, a missing hand, without previous arrangement, is like a link being lost in a big chain. A telegram comes in regard to an order that is being filled. The clerk who is away sometimes has charge of the order or other papers, and nobody else can find them. A man decides to put in some special crop. He sends a telegram, and wants his order changed. It may be possible to change it before the goods are off, if we could get charge of the matter. If the clerk who is needed is gone, other clerks tumble business papers over, may be throw them out of shape, and so lay the foundation for *other* mistakes, and perhaps even then fail to get hold of the thing needed until the train is gone. We have had men stay away with the *keys of the warehouse* in their pockets. I you should see your old friend A. I. Root at such a time as this you might know something of him then that you never knew before, or would not have known otherwise.

Just a word about going visiting. It is a good thing to cultivate sociable relations, I know; but it seems to me that April and May are two months in the year when but little visiting should be done. It is well enough for old men, and those out of health, to go visiting; but even then they should be careful about wasting the time of busy men.

It is a grand thing to have a garden; yes, I like to see every man have his own or even a rented home have a little patch of potatoes. But a man may be unwise about potatoes as well as other things. I would have the potatoes myself; but I do not think I would desert my post in the month of May to get them in. If working-hours were so long as not to afford time, I would plant them by moonlight, or, better still, between daylight and time of work in the morning. I think I would manage to do my visiting during dull seasons, if it could not be done evenings and mornings. There are almost always lulls in business. If a man comes to me and says, "Mr. Root, if it should come handy to spare me three or four days, or a week, without hindering business now, before a great while, it would be quite a favor," and such a request is made a week ahead of the time, or may be a little more, we can almost al-

ways bring things around so as to spare the one who wants to be absent; and if he does not want *too many* vacations, it does not spoil the man's usefulness and money value. A good many times when we have had more help than we really needed, I have asked several (one after the other) if they had any work of their own they wanted to do, or if they would not just as soon go visiting for a week, or something of the kind. By the time I have spoken thus to half a dozen men, I am sure to find one who wants just such a favor. Some of you may ask, "Mr. Root, if you object to anybody taking a day or more without previous arrangement, do you on the other hand always expect to provide work all sorts of weather for those in your employ?"

To which I reply, "Yes, sir, I do." It is something almost unheard of for a man to come to his place in the morning, and be told that there is no work, unless a breakdown happens, or that we are obliged to shut down for repairs. In order to do this we sometimes set a man worth \$1.50 a day on something that a boy worth 50 cts. can do almost as well. We do this for a short time rather than annoy him by asking him to lay off. While I was absent in the winter, I believe some of the hands were stopped temporarily on account of the weather. Had I been home, however, I could have set even these people at work. "As ye would that men should do unto you, do ye even so unto them."

I have sometimes felt like asking the question, "Well, my friend, for whom are you working, anyhow?" If somebody comes to you begging for work, and you give him a job, is there not a general understanding that he works for you alone until that job is finished? Come to think of it, I do remember one man who was away from his post so much that we began to inquire into it, and finally found out that he took jobs here and there, whenever he could get 25 cts. a day more than we were paying him. Of course, it is every man's privilege to do so if he thinks best. But does that kind of work pay? Surely not in the end, for people often come to me offering to work at *very low* wages providing I will give them a steady job the year round, they evidently having discovered by experience that steady employment every day, right along, is much better in the end than a day's work here and there, even at a higher price.

It just now occurs to me that my talk to-day may sound like fault-finding. I do not mean it to be so. Only a few feet from where I sit dictating is a woman who has been in my employ something over 26 years. A little further off is a man who is nearly forty, who has been in my employ steadily since he was a boy in his teens. Our stenographer remarks here that our boss printer has done better still, having been here for 26 years, or ever since he was in his teens; and he himself, who is writing down these notes, is just now finishing up 16 years here. When he commenced we talked perhaps 15 or 20 minutes about the matter of wages and work. In all these years he has had a job every day if he has wanted it, and his pay has been forthcoming every week, without an exception. I have learned to regard these old and tried friends with almost as much faith in their being at their post as I do the rising of the sun; and I presume they in a like manner have faith not only in my good will, but in my ability to guide our little ship (business ship) safely through the financial breakers. I need hardly say these friends have good pay. These pleasant relations were all built up by an energetic *reliability*, if that is the way to express it.

Now, I have been moved to throw out these hints as suggestions, especially to the younger people—the boys who have just *got married*, for instance. Sometimes the consequence of one man leaving his post for only a single day, without notice, in a large factory, is disastrous, not only in loss of money, but I think it sometimes brings about loss of life. A few days ago my attention was called to a pile of lumber that was put up so badly that high-priced choice boards were almost ruined. The boss of the lumber-yard explained it this way: He commenced the pile, and carried it up three or four feet; but as it was haying time, somebody wanted him badly to help get in hay. He was permitted to go, and another man was hastily and perhaps thoughtlessly directed to go on piling the lumber. The first one had been educated in his work, and knew just what to do and how to do it. The one who took his place had had little or no experience in that kind of work. There was a clear sharp line where the good lumber ended and where the damaged commenced. Once in a while we find a man who says:

"I should like to be away this afternoon, but I have arranged to have my work done by somebody who will do it right. If any thing comes amiss because it is *not* done right, just charge it up to me and I will pay the damage."

Now, that makes quite a different matter of the whole affair; and when a man speaks in that way, and his past record shows that he is *good* for all he undertakes to do, his money value is likely to come *up* instead of go down. I feel quite sure that the great world at large does not *understand* how it is that one man gets big wages and another one low wages. You may say the result of my teaching would be too many high-priced men. Not so, my friend. Every time a man is wanted to take charge of a department or of a company of men, we have hard work to find one competent. Ordinary day laborers are always in *great plenty*; but reliable men to take charge of and furnish brains to look after the muscle, there are *never* enough to go round.

I can not think of a better ending than to put right in here a letter that was put into my hands just as I dictated these last words.

Dear Friend and Brother:--I feel that I have a right to call you brother now. I write this to you first, from a sense of duty; and next because I know it will rejoice your heart to know that another of the GLEANINGS family has found the Lord. I had strayed away from God for many years; but I have the blessed assurance in my heart that I have been washed clean in the precious blood of Jesus, even if I have returned at the eleventh hour. However low down in sin I have been, I have always found time to read your Home Papers when I have had time to read GLEANINGS. Never give up those little sermons. You don't know—you can never know this side of heaven—the good they are doing. Nothing in the world would give me greater pleasure than to take you by the hand; but that may never be, perhaps, in this world. But by the dear Savior's help I expect to meet you in glory.

Your brother in Christ,
San Francisco, Cal., Apr. 27. HENRY S. THOMAS.

Dear unknown friend, you knew then, did you, that it would rejoice my heart to hear of a reader of GLEANINGS who had started out for eternal life? Now, dear brother, hold steady, and beware of the tempter. Ere many days he will try to cripple you and lead you astray. Stick to your Bible; go to your Savior every day and hour, and you will not only succeed in holding fast to the new bright life, but you will always find there are "more to follow." May God bless and strengthen you, and all the rest of the new converts that GLEANINGS reaches.



A DROUTH IN MAY.

I believe the above is something I have never known before. But there are many pleasant things about it after all. And do you know I rather enjoy these unusual features of the weather the great Father has seen fit to send us? Whenever any thing happens that the oldest inhabitant has "never seen the like of before," there are always many interesting things about it for me. In fact, I almost always find new possibilities. For instance, during this dry first of May there is no trouble in pulverizing the ground just as fine and nice as we would do in August. I have told you a good deal about our creek-bottom garden and Champion Brook. Well, this brook is worth some money just now. By the way, is there any sort of brook running through your lot? If so, you are lucky. If you haven't one, I would try to make one in the lowest part of your ground—some old natural watercourse. If you have already got it well tile-drained, have some silt-basins or little wells put along at convenient distances, for dipping up water.

Now I will tell you why you want a brook. We are again sold out of strawberry-plants—that is, we can not fill orders without taking up the plants that are to produce our fruit. But we do this rather than disappoint our customers; and as a consequence of being short we are making plants just as fast as we can by the aid of this beautiful warm sunny weather. Perhaps I should say we are making preparations for plants rather than making the plants themselves, although we have runners started already, where we have taken pains to pick out the blossom-buds and *push* them for runners. Well, our new strawberry-plantation is right alongside of Champion Brook. We plowed the ground, fined it up, mellowed it, rolled it, and marked it. Then as the plants were to be moved only a few rods, we took them up with a good chunk of dirt adhering to the plant, and set them in rows parallel with the brook. As it was Saturday (and no school), the largest part of my Sunday-school class were helping. Ordinarily I dislike to have a lot of boys transplanting, because they run about so much and tramp up the ground; and if it is the least bit wet, it gets stamped down so hard it bakes. The ground is so dry now, that, the more they stamp it with their bare feet, the more they mash up the lumps. Every thing is dry, and nice to work with.

When the plants are all in, with a ball of earth adhering, as explained above, then the boys dip water out of Champion Brook and give each plant about a pint, so it can start out housekeeping in good order. To test the value of a pint of water under such circumstances, we left one row Saturday without watering. I did this because there were indications of rain, and I thought I would see how much difference it made. Sunday, May 5, was exceedingly dry and hot—about 95 degrees in the shade, with drying winds. The plants that were not watered were most of them apparently dried up, while the others were just as fresh and bright, almost, as if they had not been moved. I went over this matter when describing the use of transplanting-tubes. We did not use tubes this time, because we found we could take up a ball of earth, with a narrow round-pointed ditching-spade, almost as well as to use the tins; and it is quite a little trouble to pick up the tins and carry them back and forth.

I do like to work soil that is dry enough so you can pulverize it and level it off and mark it out without having things stick. Then, as I said before, the running and tramping about does good rather than harm; and with water close by, say only a few rods from the plants, the whole length of the field, it is not a very big job to do the watering.

HOW TO TRAIN THE GAULT RASPBERRY FOR FRUIT.

Friend Gault—at least when I visited him—has never used any trellis at all for his raspberries. The bearing canes go up into the air, and then go down and root at the other end; and this supports them pretty well from the ground—that is, with the old canes. But his berry-patch is pretty well tangled up; and if you don't look out the vines catch on your clothing, and get broken and in disorder. We have just finished taking out the young plants, and this left a great lot of long canes trailing on the ground. It was a very difficult matter to cultivate between the rows; and another thing, the fruit would be sure to be down in the dirt unless there were some sort of support. We got out some oak stakes, 2x3 inches, and 4 feet long. These were driven, with a big sledge, at each end of the row, and some heavy galvanized wire, such as is used for grapevines, was stretched from one end of the row to the other. Then, to prevent the wire from drooping clear to the ground in the middle of the row, more similar stakes were placed, say about every 40 or 50 feet.

Now, then, we are ready to pick up these long loose canes and tie them to the wire. But I have found tying with strings to be slow business, so I got some small galvanized wire, about like that used for the lightest poultry-netting. I got a pair of tinner's shears, or snips, from the tin-shop, and wound this light wire, say a dozen times, over one of the blades of the snips. Then by shutting the shears together we had a lot of oval rings open at one side. They are shaped something like the letter U, made of wire, but the ends were pretty close together. The boys take a lot of these wire loops, slip them around their suspenders so as to have them handy when needed. With one hand they lift up a raspberry-cane, and with the other they slip a wire loop over both cane and wire; then the loose ends of the loop are twisted half a turn. Do not twist them any tighter, because after the cane has done bearing we shall need to open the loop so as to get it out and put a cane of new growth in its place. We spent quite a little money in tying up raspberry-canecanec last fall with strings; but when spring came, the motion of the wind sliding the string along the wire had cut off a great many of them. With our Palmer and Gregg raspberries we also found a good many shoots winter-killed after we had been to so much pains to tack them up to the wire. So far the Gault raspberry has never winter-killed at all; but every cane was fast at both ends. The old root was attached at one end, and the new plant at the other end. My experience is, a raspberry-cane is much safer from winter-freezing when both ends are well rooted in the ground. So long as you want to raise plants, the Gault raspberries may always be thus rooted at each end.

Now, it is some work to put up stakes and wire, and tie up the canes; but the straight rows look very much better, the picking is much easier, and then it is so much pleasanter to cultivate raspberries that are tied up. While visiting E. France I got the idea of tying blackberries to a wire in the way I have described. With the latter, however, you need taller and stronger posts, and a much heavier wire; but

for raspberries, I think the wire need not be more than $2\frac{1}{2}$ feet above the ground. This keeps them out of the dirt; and it is so low, if you want to go "crosslots" you can hold the wire down and straddle over it—that is, if you are a man of average stature.

One thing more about having your garden with rows parallel to the brook. Of course, said brook should be made to go straight through your premises. You can not afford to have it crooking as brooks usually crook. In order to have it handy for irrigation, it is not necessary that water should always be running in the brook. Scoop out some holes at intervals, and these will be filled at every summer shower. By making them of sufficient depth and length you can have water enough to keep things going, even during a very severe drouth. These remarks are intended, of course, only for using the water so you can transplant during very dry weather. After you get your stuff well going, there is seldom much need of irrigation if you keep the cultivator constantly moving, so as to preserve a mellow surface. Besides, creek bottoms, as a general thing, have more or less sand or gravel in their subsoils; and I have found this to be the case, even in heavy clay soils.

Have your brook arranged, however, with ample outlet, so that, if you have a June freshet, the water may not come clear over your stuff. In order to get rid of the effects of freshets, Champion Brook (through our ground) is from 4 to 6 feet deep, and perhaps 10 feet wide at the top, and 6 feet wide at the bottom of the channel. The sides are kept from caving in by means of cedar posts and hemlock boards. As fast as we make tin scrap in our tinshop it is packed down back of the boards, so that, by the time they rot out, the tin scrap will very likely have rusted together so as to make a permanent wall to resist the effect of high waters. Of course, we have to do more or less cleaning-out of the brook every spring.

About midway in the length of the brook, in the center of our garden, we were lucky enough to find a spring with sufficient force to raise the water 15 or 20 inches in a large iron pipe driven over this spring. This spring furnishes drinking-water all through the summer, and near where a great part of our work is done, and is worth ever so many dollars to us every summer. Now, if you have not a garden in your lowest piece of ground, with a brook running through it, you are missing lots of fun and lots of profit to one who loves to work in the ground and see things grow during a drouth.

GETTING RID OF WEEDS IN THE PLANT-BEDS.

One of the expensive drawbacks in raising vegetable-plants has been the weeding; and one trouble with the weeding is, that the boys get lazy, and lose interest when we set them to picking out the weeds between the plants, especially if the beds are very weedy. You may say we should not let the weeds go to seed. Well, we don't let them go to seed. The stable manure we are buying constantly, furnishes fresh seeds; and there is no other fertilizer as cheap and effective as stable manure.

Now I will tell you how we worked this spring. We have a larger area than heretofore, and therefore we can spare the use of a bed for a week or ten days better than when we were cramped for room. Accordingly the beds are made up as heretofore, the soil sifted so as to have the finest and best dirt on top, the bed nicely leveled over with a strip of board; and then if it does not rain it is watered and left before planting until the weeds have about all come up. Then on some hot day the surface is chopped up with a sharp steel rake, and once more sifted with a fine hand-sieve. This takes

out all the weeds, but lets the fine earth go through. Now smooth off your bed, and put in either plants or seeds, and your crop will cover the ground before weeds of any account make their appearance. In this way we get rid of weeding almost entirely, and the surface of the beds gets to be so fine it works almost like flour. If there is old rotten manure enough in it to put a rich dark color to it, this fine surface will bring up almost any thing in an incredibly short space of time; and if you put in plants they get hold and make an astonishing growth in a time that would seem almost incredible to one unacquainted with soil just right in richness and tilth. The sieve we use for this last sifting is a 10-cent square sieve for coal ashes. You can find them at almost any of the 10-cent stores. They are very light to handle, and so cheap you can afford to leave them out in the rain, without being much out of pocket.

A word more in regard to getting the soil into such a fine state of subdivision. Within a few weeks, the *Country Gentleman* has contained some excellent articles on preparation of the soil; and T. B. Terry has taken it up in the *Practical Farmer*, quoting from the *C. G.*, and adding emphasis from his experience; and I will tell you what we have been doing right along in this line during this dry month of May. We ordinarily cover our ground with a heavy coating of manure before plowing it under; but for potatoes we do the manuring the year before; therefore there is nothing to hinder working the ground up fine and soft before it is plowed. We do this with a two-horse cultivator having all the teeth in, and the roller. In fact, we get the ground fine enough to put in a crop before it is plowed at all; then when we turn it over with a plow it is finely pulverized soil down where the potatoes can make their growth. After it is plowed we fine it up again, and use tools going down deep enough to get to the fine soil turned under. I am getting to be notional about the way my plowing is done. I want the best plow I can get, and either a new point or the old one properly sharpened as soon as it becomes dull. On our creek-bottom ground we make the plow go down nine or ten inches. If it hits a stone or hard place, and then runs up, we back up the team and do it over again. After the plowing is done scientifically, then with the cutaway or Acme harrow, alternating with the roller, we get it just right, on the same principle that we fix our plant-beds, only, of course, we can not go to the trouble of sifting several acres. It is not so very expensive, when the ground is just right, to get a mellow seed-bed nine or ten inches deep. All the potatoes we raise are planted by hand. The furrows are made by Darnell's furrower and marker combined. The revolving disks make an additional fining-up, and the potatoes are finally placed with about four inches of fine mellow earth under them, and four or five inches of soft mellow earth over them. If you do this you will have a crop without any expensive commercial fertilizer, and without very much stable manure—that is, where you have a soil such as we have here in Medina. I know conditions are different away down in Florida, and possibly in other places; but with our clay soil this thorough fining and pulverizing answers to a great extent in place of the manure.

If you want more on this subject, especially fuller details, read Terry in the *Practical Farmer*, along about the first of May. The address of the publishers is Philadelphia, Pa.

Since writing about fine soil well mixed by sifting with good old well-rotted compost, I have read what our friend T. Greiner has to

say in several of the papers in regard to this very matter. In taking a small quantity of valuable potatoes, like the Craig, for instance, and increasing a single tuber to the utmost, he practices pulling off the sprouts, after they have made a leaf or two above ground, and have sent up little branching roots where the sprout is attached to the potato, a good deal as we do with the sweet potato. These sets may be pulled off and planted out; but to make a success of it you want this kind of fine rich soil I have been talking about. I suppose florists would call it *potting-soil*. There are many grades of this *potting-soil*; but when we get some that is real good it will start potato-plants, or any other kind of plants, with almost no effort or care at all. For instance, when we put out plants in our plant-beds, if the sun shines during the month of May we must both water the plants and shade them during the middle of the day, in ordinary soil; but if you have plenty of the very best kind of this *potting-soil*, if you put out good plants over night, and give them a pretty good wetting, they will have caught on to this *good* soil even during the night, so they will stand up all next day in the sun unless, indeed, it shines tremendously hot, with severe drying winds. The plants will do this with such soil where they would need to be shaded a week in ordinary garden dirt.

I have mentioned before doing quite a trade in furnishing this *potting-soil*. We get 10 cts. a peck or 25 cts. a bushel for it; and where we give a real good article, everybody thinks it is cheap, and is sure to come again. But if I am away from home, the boys are pretty apt to fill the order from some bed where it is only tolerably good. When I tell them that at this price they ought to have the very best we have—even that right out of the greenhouse-benches—they are apt to demur, and think we can not *spare* it. Why, 25 cts. a bushel would pay for clear stable manure, and we can make a very nice *potting-soil* with a half or even a fourth of well-rotted manure. A great many times we can find just the very best of this stuff where an old hogan, stable, or even poultry-house, has rotted down in some obscure corner. I think the best I have seen was where we put a great lot of poultry-manure in one of our greenhouses. I feared it would kill the plants; but by spading the ground down very deep—say more than a foot—and sifting the whole together repeatedly, it did not hurt the plants—at least very much. But it did not get to do its best until it had been worked and turned over for about one year, and then it was just beautiful to look at or to handle; and any thing that was given a chance would take hold and begin to grow almost in one night, and the plants would cover the ground, and need transplanting again, almost before one could turn his back. Oh what bright, clean, smooth-looking foliage—cabbage, celery, tomato, and every thing else! Somebody has put in a caution about getting the ground too rich for vegetable-plants. I never saw it too rich myself, providing they had plenty of sun and air, and were transplanted further apart just as soon as they began to crowd each other in the least.



HONEY FROM THE FLORIDA WILD PENNYROYAL.

Around friend Poppleton's, and at other places around Indian River, we saw a plant which they call pennyroyal. It is not a bit like the pennyroyal of the North, however, but it is rather a sort of vine with a pennyroyal taste. It spreads and grows of itself, with even just a little chance, and friend King is preparing now to plant out ten acres. I suggested moving his bees to some place where he could have *hundreds* of acres without the trouble of planting it. But he thought he could prepare and plant ten acres around his home cheaper than to move his bees, etc., to where the pennyroyal is already.

Friend King asked me the question whether bees always gather honey when the flowers yield it. Of course, I said they would; and when he went on to tell me of a time when the black mangrove yielded so much honey that it actually dropped out of the blossoms on the leaves below, and the bees would not touch it at all, I was going to accuse him of superstition. He finally explained it by saying they had a sort of salt-water fog, or spray, that covered the blossoms, bushes, and all, until the honey tasted of the salt. After they had had a good rain they washed out the salt honey, so that some more was secreted, and then the bees went at it again with a great boom.

MORE ABOUT THE SHELL MOUNDS.

Close by friend King's ranch, a spur, or side-track, branches off from the main road, and runs down to a shell mound on the banks of Indian River. This side-track is solely to take shells by the carload to the adjoining towns and cities for paving the streets. As soon as I was able to walk half a mile or more we went over to this shell mound. The shells had been shoveled away, and the track pushed off into the mound until in places a wall of solid shells rises almost perpendicularly beside the track, up fifteen or twenty feet. Was this great mound or hill made entirely of shells thrown away after some former race of people had used the contents for food? One feels a little incredulous; but as he examines the shells and finds they were broken open much as we open them now, and the large conch shells mixed in, each one of them having an opening broken in at just the right point to scoop out the edible portion, it begins to look as if it must have been the work of human beings. Besides this, at different points along up the wall of shells we see strata of dirt, debris, ashes, charcoal, and even broken pottery, indicating that the people who lived there encamped for some time on a certain spot, and that this spot was at a later date vacated and covered up with a foot or two of shells; then another encampment, and so on. Are these shells valuable only for road-making? Yes, they can be easily burned into lime, to be used for plastering houses, or to be spread on the soil where lime is needed; and some excellent results have been obtained by using these burnt shells for a fertilizer. One trouble is to get the fuel to burn them.

WAXING HONEY-BARRELS.

Before I finish up my visit at friend King's I want to speak about barrels for honey. In that warm southern clime, where frosts are so seldom known, there are great varieties of insect-enemies that we know nothing about. For instance, if you leave a boat in the water for any

I often read the piece on the third page of "Bees and Honey," and sometimes the tears blind my eyes. I know you must be a good man to meet with such wonderful success—once a laboring boy and now keeper over such wonderful works. As a rule I make things prosper along my path. I commenced empty-handed, but now it is quite different. I am bound to make the bee-business flourish in this valley. I have always kept bees, but on the old plan, which amounts to nothing.

M. A. BELLOWS, Griffin's Corners, N. Y.

length of time, the *Teredo navalis* will eat it full of holes and make it worthless; whereas, if the boat had been taken out of the water, and kept in the air, it would have been unharmed. So you see Florida is harder on slipshod managing than almost any other place. Every little while we see the results of slothfulness in beautiful boats that cost large sums of money being left in the water, to be eaten up by the teredo until they are next to worthless. Another insect delights in making little holes through the sides of honey-barrels, or any other kind. Friend King says that, no matter whether your barrels are made of oak, cypress, or any other timber, and no matter how carefully you put them away where they won't dry out, it is never safe to put honey in them until you have waxed the whole inside according to the directions so many years ago laid down in the A B C book. Wax the barrels just before they are filled, and they are safe and sound, and honey may be shipped clear to New York, without the outside becoming sticky in the least. He finds paraffine to answer just as well as beeswax, and it is very much cheaper.

Talking about shells reminds me that, while visiting Harry Mitchell, near Hawk's Park, we were shown a strip of ground in front of the house, all covered with broken shells. It was outside of the dooryard, along the main roadway, and I was much surprised to learn from friend Hart that they secured excellent crops of onions and other garden vegetables right in among these shells, although we could hardly find a bit of soil of any account.

This recalls that I omitted in the proper place to mention the very pretty little home belonging to friend Mitchell and his good wife. An artesian well of considerable volume attracted my attention in the back yard; but it was too warm, and too strongly impregnated with sulphur, to prove very palatable. Friend M. has, besides his apiary, quite a pretty yard of fruits and flowers, and a valuable collection of curiosities from Florida and other parts of the world. Although he himself is in quite poor health, we are reminded, by looking back at pages 860 to 863 inclusive, of GLEANINGS for Nov. 15, 1894, that he secured last season the enormous honey crop of 21,500 lbs. from 57 hives, or an average of about 377 lbs. per colony. If anybody has ever made a better report than this, either in Florida, California, or any other part of the world, it seems to me it can not be very much ahead, all things considered.

Sanford, Fla., is a very pretty town of about 2500 inhabitants. I was much interested in the spacious waiting-room at the depot, especially as said room contained a large open fireplace with a cheerful fire burning, made of pine logs resting on old-fashioned andirons. I had been suffering a good deal from chills, and it seemed hard work, a good many times, to get thoroughly warmed up, even down in that land of flowers and sunshine; but the big fire of pitch-pine logs filled the bill to my heart's content.

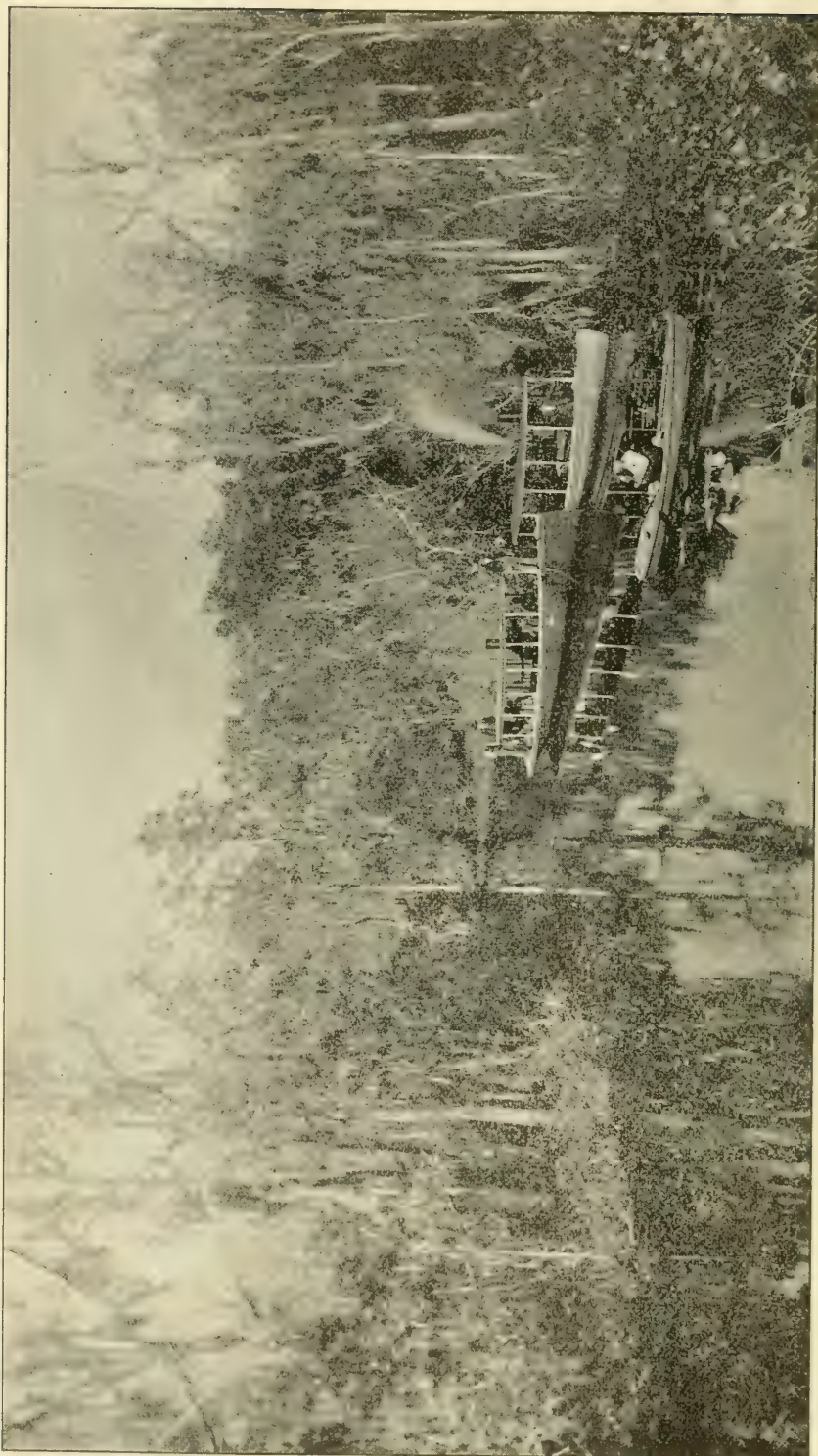
After getting well warmed up I enjoyed a walk for a couple of miles to the little station of Fort Reed, where friend McMillan has his home. Here I met with such a warm welcome from all the inmates that I did not quite understand it. My friend and his good wife, however, made haste to explain. If I am correct, they moved to Florida on account of ill health. There they found good health, but did not succeed in finding any thing suitable to their case for earning a livelihood. While thinking over the matter, and, I believe, praying over it (for they are devoted Christians), a sample copy of GLEANINGS fell into their hands. Both husband and wife soon became deeply interested, got some bees, and commenced. Although they

are well along in years, and in feeble health, as the bees increased their enthusiasm and strength seem to increase also, to meet the emergency; and right in the spot where nobody else ever thought of raising honey they have made excellent crops, and increased their bees to something like 100 colonies. Instead of selling honey at five and six cents a pound, as some others have done, friend M. started out to develop his home market. He carried samples to the big hotels, and took orders at from eight to ten cents per pound, if I remember correctly, being exceedingly careful to furnish only a first-class product, even though almost their only source of honey is the saw-palmetto; and that is why they sent me an invitation to call, and felt so glad to welcome under their own roof the man who wrote the A B C book.

I have before mentioned that a new industry has sprung up in Florida during the past winter, in the way of furnishing firewood. I was surprised to see the number of colored men with a bright new one-horse wagon, ditto harness, and a fair-looking mule with which to draw wood to town. They go out of Sanford a couple of miles, and get a very nice pine-tree, as it stands in the woods, for 25 cts. The horse stands hitched to a tree while the owner cuts up the load of wood. Then he drives to town and gets a dollar for it. I suggested, as a matter of economy, that the man employ somebody else to cut the wood while he goes with a load, thus taking ever so many more loads in a day; and I said, also, that one man could drive two horses as well as one, and thus double the output. Friend M. assured me, however, that I did not understand the colored race at all, or I would not make such suggestions. He said it was accepting considerable responsibility already for one of these men to keep his horse going every day, let alone hiring somebody to help, or, worse still, thinking of having the care and responsibility of two horses. And observation seemed to back up his assertion. Every thing is done on the one-horse plan—especially where the colored people manage it; and the one horse, instead of doing a whole day's work, stands still in his new harness, hitched to the brand-new wagon the greater part of the time.

In the vicinity of Sanford are many beautiful lakes, and some of the finest orange-groves, perhaps, in Florida. Where there was so much lamentation because the garden-stuff was killed by the frost, I suggested to quite a number of the gardeners that they try their hand at hardy vegetables that would stand a freeze: and at Sanford I found an onion-patch of nearly an acre that was comparatively unharmed. The proprietor, however, was a little above the average gardener. He had got his ground under high cultivation, and made very rich, so that the onions had vigor and vitality enough to stand the blizzard and to keep on growing.

I found one of friend McMillan's boys very busily occupied, together with a neighbor's boy, in building a boat. This boat was to be launched on Lake Jessup, within a short distance of their home. The boys were making their boat of sufficient size so they could camp out in it for several weeks, and have room enough for their provision, bedding, etc. By taking advantage of the lakes and rivers, they can get so near Indian River, that, by hiring a team to pull their boat across a mile or two, they can go clear down to Lake Worth, and from there back up to Daytona and Ormond. Of course, the vessel is to be run by sails, so the boys may, by giving their time, make quite an exploring-excursion, and see a good deal of the world, being out of pocket only what is necessary for food and clothing. A great many have made



ON PALATLAKANA RIVER.

such trips as this, and have found them, where properly managed, very enjoyable. I could not but share the boys' enthusiasm; for it brought vividly to my mind the time when I, although only 18 years of age, felt that I could not stand it any longer without seeing a little something of this great world of ours in which we live.

When I wrote up the electric gasoline-launch on pages 143 and 144, I planned to give you a picture of some of the Florida rivers with one of these pleasure-boats on it. Here it is.

A young man on the cars gave me the photo. He owns the larger of the two boats, and makes it his business to carry tourists.

ELECTROPOISE, ETC.

MORE ABOUT THE ELECTROPOISE.

Mr. Root:—I have been very much interested in your expose of humbugs and swindles, particularly that of Electropoise. You say, "If it does perform cures it is exactly in line with the idea that a horse-shoe nailed over a door wards off disease." My idea about the matter is, that a great many people have been really benefited by Electropoise, but exactly on the same principle that people are benefited by faith cure, Christian science, the waters of Lourdes, the relics of saints, the laying-on of hands, etc. If people, when they employ these remedies, thoroughly believe that they will be beneficial, then, as a result of that belief, they will be benefited.

The imagination has a very powerful influence over the functions of the human body. You say that a brass button, with a wire attached, would be just as efficacious as the Electropoise apparatus. That is undoubtedly true, provided the person using it thoroughly believed in it.

Covelo, Cal., Apr. 25.

THOS. B. HENLEY.

[Friend H., if I am correct you do not mean to reflect on a proper, right, and reasonable faith in God. I have closely inquired into the matter of faith cure, Christian science, etc., not only around my own home, but in Florida and California, and I have watched the records from other places. While there are some remarkable cases of recovery that we can not account for, there are also other instances of where both limb and life have been sacrificed because friends refuse to call in their family physician or a competent surgeon. Yes, there have been several cases of arrest of the parties because they neglected the usual and recognized means of saving life, and I think it was right and proper that people should be arrested under the circumstances. Notwithstanding, I have great faith, and with good reason, in constantly seeking God's guidance and wisdom in directing us what to do with these bodies of ours to escape sickness and death as far as possible. This Electropoise business will be the means, no doubt, of arousing people to the fact of how much imagination may do in the way of cures. But the guilty parties should be arrested in their swindling, all the same. Jesus said, "The Son of man indeed goeth as it is written of him; but woe to that man by whom the Son of man is betrayed! Good were it for that man if he had never been born." Again, "God maketh the wrath of man to praise him," it is true; but this by no means makes it right that they be allowed to go on in their wrath.—A. I. R.]

Inclosed you will find some clippings from *The Biblical Recorder*, of Raleigh, a Baptist paper. Is this Electropoise the same as you have reference to in your paper? If so, please send me some extra copies of GLEANINGS, also extra slips of the item of Prof. H. W. Wiley. I also know of a Baptist minister in my own county who sells the Electropoise, and I know of two people in my own town, whom he sold to, with no benefit—price \$25.00; but I don't know whether it is the same. If they are swindlers,

which I believe they are, I am with you to help break it up.

S. D. MATTHEWS.

Hamilton, N. C., Apr. 29.

[Yes, friend M., the circulars you send are from the very same Electropoise people we have been exposing. These people have all along based their claims on the simple fact that everybody who used their machine was either cured or made better. But here we are told of two customers receiving no benefit. The only wonder is, that anybody should receive any benefit or even *think* he had. But another appalling fact stands forth. A minister of the gospel has used his sacred calling to induce people, perhaps the members of his own church, to buy his wares; and these wares, instead of being legitimate trade and honest merchandise, are a terrible fraud and swindle—\$25.00 for that which should not cost 25 cents, and the whole thing a piece of hypocrisy and quackery at that. Religious papers have been shirking responsibility, and here is a part of the result. Friend M., show this to these poor friends who have been victimized, and advise them to demand their money back. It is a very clear case of fraud; and either the minister or the Electropoise company will hand it over very quick—probably. If they do not, tell them (the two victims) to make a plain statement in their own handwriting, and forward these statements to me.—A. I. R.]

The following from the editor of that bright new little journal, *The Market Garden*, it seems to me, throws a little light on this matter of "testimonials:"

Mr. Root:—Your stand on the Electropoise question seems to me to be worthy of no censure. I am inclined to believe your correspondent on the question in the last number of GLEANINGS has failed to understand human nature or correctly interpret her eccentricities. There are many people in the world who only need to find faith in something to find in it a panacea for their ills, the majority of which are imaginary. I am a strong believer in faith cure to the extent that, if people would only have more faith in themselves, they would have more cures than in all the patent or quack remedies under the sun. Suggestion alone is a powerful remedy; and having realized this, the cure-all people throw something in with it and reap enormous profits from the credulity of human nature. People buy the remedy, and sincerely believe they are getting well from diseases they never had, and hasten to make all sorts of testimonials, or sign those made up for them by the wise proprietors of the new medical fad.

F. W. LEAVITT.

Minneapolis, Minn.

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Electricity, 6 Park Place, New York.

[Please mention this paper.]



SWEET-CLOVER SEED WANTED.

There seems to be an unprecedented boom on this seed this year. We have handled more during the past six months, several times over, than we did in the previous six years. We are again in need of more, and should be glad to hear from any of our readers who have it for sale.

RUBBER GLOVES, SECONDS.

We have a stock of rubber gloves, Nos. 10, 11, and 12, which we bought as seconds, but which are so good that it is difficult to see wherein they are inferior to firsts. We are able to offer them postpaid, at 90c a pair. With other goods, 85c. Special rates in dozen or half-dozen lots.

CARLOAD SHIPMENTS.

As we go to press we are loading a third car, made up of export orders for New York, and have just shipped a second car to Barteldes & Co., Denver, Col. We are at work on the third car this year for Syracuse, N. Y., where F. A. Salisbury is prepared to take care of your orders for any thing in our line.

SECOND-QUALITY A B C BOOKS.

I find we have about 50 copies of the above, made up from sheets that were a little soiled or otherwise injured. They are just as good in every respect, and can be easily read—every page and every word. Until they are gone we offer them, cloth bound, at only 50 cts. each, by express or freight with other goods. If you want one by mail, add 15 cts. for postage. These are the last edition, and exactly the same as those we are selling for \$1.25.

HONEY MARKET.

We are finally closed out of comb honey entirely, except two small lots in hands of commission men in Cleveland. We have a good supply of extracted honey in cans and barrels. We have one lot of clover honey, which we will sell as it is, 350 lbs. in a barrel, at 8c, or put up in 60-lb. square cans at 9c. Choice basswood and clover honey in kegs and barrels at 7c; in 60-lb. cans, at 8½c, or two-case lots 8c. Choice Alabama honey, in barrels of about 500 lbs., at 6c. Samples mailed to those interested.

BEESWAX EASIER.

The highest point has been reached in the beeswax market, and prices are again declining slightly. We have some six or seven tons in stock, and we decline the price we pay till further notice, to 27c cash, 30c trade, for average wax delivered here. When you ship wax, be sure to put your name in or on the package, and write by mail, giving the weight of the wax shipped. We have over half a dozen lots of wax on hand now for which we can not find the owners, as they have failed to take these simple precautions when they shipped it.

DIVIDED-TOP BROOD FRAMES.

We have nine boxes, each containing 250 thick-top frames, with divided top-bar. They are just like our regular thick-top frame a year or two ago, with top-bar in two sections, each ½ inch wide. Those who like to fasten foundation in the top-bar by pinching between two pieces of wood, would find these frames convenient to use. We will sell them in the boxes, as packed, at \$2.00 a box, which is 80c per 100—about half the price of the regular thick-top frame. This is something we do not catalog, and we desire to close out this stock, hence this low price. We will not repack a less number for less than \$1.20 per 100.

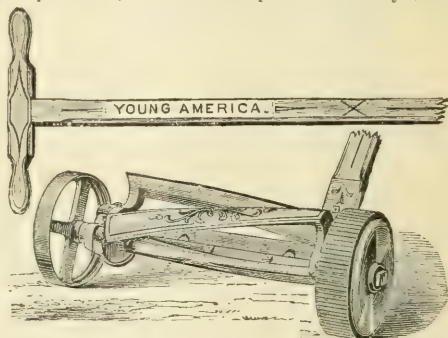
BUSINESS AT THIS DATE.

We are being crowded to our utmost capacity these times—are running 12 hours a day; and if we had enough extra competent men at hand we would have a night force at work for two or three weeks, so as to turn out the goods faster. There are but few orders that have not been shipped within a week after they were received. On Tuesday, May

7, we broke all previous records by putting up 130 shipments by freight, besides quite a number by express. In the eight days ending Saturday, 11th, we received six hundred orders, and we had left unfilled at that time 250. But we had during that time shipped about as many as received, so we are really less than a week behind.

CHEAP LAWN-MOWERS.

Here is a bargain for those in want of a low-priced mower. This machine used to be our leader, and we have sold hundreds of them. Desiring to close out present stock we have cut the price down this season to less than we paid for them a few years ago. We sell the 10-inch for \$2.00, and the 12-inch for \$2.50. In lots of 3 we will discount these prices 10 per cent; 6, 15 per cent; 10 or more, 20 per cent. They are a



good light-running machine, and a bargain at these prices. We can not supply any more when present stock is sold. If you desire a bargain, let us hear from you at once.

THE MOHERMAN BRASS SPRAY-PUMP.



The adjoining cut shows a spray-pump which we secured after our list of spray-pumps was made up. It was such a decided bargain that we bought some of them. It is made on the same principle as the Myers bucket-pump. The hose is attached to a tube running up through the air-chamber. The nozzles used on the pump are the same in construction as the Myers. We can sell this one for \$2.50; by mail, \$3.25. An eight-foot pipe extension, which can not be mailed, will be included at 35 cts. extra. There are a good many spray-pumps on the market, but I doubt if you will find one equal to this at the price at which we offer it. Special prices to dealers, on application.

PROTECTING PLANTS FROM FROST, ETC.

May 13.—Well, we got some rain last Saturday, the 11th, and, more than that, it wound up with a frost last night. We had 125 large tomato-plants, many of them in blossom; and as the frost came Sunday night, it was desirable to get them covered with as little work as possible. The tomatoes were right adjoining our pie-plant patch. After a little study I directed the boys to cut off just the largest leaves from each pie-plant, and sort them out so as to put the biggest leaves over the biggest tomato-plants. The plant was carefully turned over on its side, and the great pie-plant leaf spread over the point of the leaf coming down right by the root of the plant. Then Ben, with a scoop-shovel, put a little fine dirt all around the edge of the leaf to make it tight and to hold it secure. It took perhaps half an hour, with three of us, and this morning our tomatoes are as bright and fresh as if there had been no frost at all. About an acre of kidney wax beans upon the hill were all laid flat, and the same with some Burpee's bush limas. Of course, I knew when I planted them I was taking a risk.

THE CURRANT AND GOOSEBERRY WORM.

This pest started out earlier with us than ever before, and with more persistence than ever before. We first tried hellebore, but it did not work very well, because all we could get at the drugstores was kept over from last year. Then we tried insect-

powder. This did pretty well, but it is more expensive than hellebore, and so we sent off for some fresh hellebore. This cost less, and did the business pretty well. But by this time we discovered that air-slacked lime answers just as well as either of the above, and costs practically nothing. You can use it in the bellows just the same as the insect-powder. Perhaps the amount of hellebore and pyrethrum that had been administered before we tried the lime may have had something to do with the success of the latter. The great thing with these pests is to take a stitch in time. Go over your bushes twice a day. Look carefully at the leaves out of sight down near the ground; and whenever you see half a dozen worms at work, go to work with your powder that very hour. If you wait over night, or, say, over Sunday, you may find every leaf off your bushes before you suspect that such a thing is possible.

SEED BEANS FOR FLORIDA AND OTHER SOUTHERN LOCALITIES.

I have told you something of the great bean industry of Florida, and that it commences ordinarily as early as December. From that time on, snap beans are shipped north until we can grow them here in our own locality. Well, they do not use the wax or yellow beans. They say they do not do as well as the green-podded varieties. And another thing, they can not raise good seed in the South. It all has to be brought from the North. Of course, where they get such extravagant prices for green beans in mid-winter, they want the very best seed to be had. After considerable inquiry there seems to be a pretty general agreement that a green-podded bean called "Best of All" is what is wanted. I wrote to several of our northern seedsmen in regard to the best bean for Florida, and there seemed to be a general agreement in regard to this variety. Now, I am going to undertake to furnish our southern friends with beans for seed for less than they now have to pay—four or five dollars a bushel. If some of you wish to turn in and help, I have no objection at all. I have secured 4 bushels to plant of this variety, Best of All, and can supply any of you, who want to try it, at the following prices: Pint, 15 cts.; quart, 25 cts.; peck, \$1.50. If wanted by mail, add at the rate of 8 cts. per pint, for postage and packing. When we get some nice seed, I think we can dispose of it readily by an advertisement in GLEANINGS or in some of the papers that circulate in the Southern States. So far as I can learn, it is a great yielder; and the dry beans can probably be furnished nearly if not quite as cheap as our ordinary field beans. Of course, I had to pay a high price to get the seed of this variety to start with. I wish some of the friends in Florida, who have grown the Best of All, would tell us a little more about it.

THE RECENT FROST.

Very likely the question is coming up with many of our readers as to what shall be done. Well, it wants some advice from somebody of wisdom and years of experience, many times, to say just what is best to be done. A year ago a patch of wax beans was, to all appearance, "gone up," as the boys say; but on examining closely I found buds between the leaves, that seemed to be unharmed. I waited three or four days, and had just about decided to harrow them up and plant again, when I thought I would wait a little longer. We had a warm rain, and almost every beanstalk started. I planted some more right after the frost, to see which would do better; and the frost-bitten ones gave a pretty fair crop of wax beans ten days or two weeks ahead of the others. Of course, the frost-bite set them back; but when they once got out leaves, the large root that was unharmed gave them a big send-off. At other times I think I have fussed with frost-bitten stuff when it would have been better to cultivate it up and plant anew. Sometimes you can plant between the hills or put another row alongside of the frost-bitten row. The latter way makes cultivation difficult. Putting a hill between the others does pretty well; but in gathering the crop it takes too long to hunt it up here and there; and unless it is worth considerable money it costs about all it comes to. If you decide to plant over, I would work the ground up thoroughly with cut-away or other barrows, fine it down, and roll it, as in the first place, then put in your crop just as nice as you know how. As the second planting comes right in the very best part of the season, it will oftentimes give a much better product than the first, any way; but on most things

grown by the market-gardener the prices will generally be considerably lower. Whatever you do, do not get the blues, and let your ground grow up to weeds. Get at it and do something at once.

MY NEW WHEEL FOR 1895.

I have had it some little time, but I did not mention it, because it took me some little time to decide that I liked a wheel as light as an 18-lb. Rambler. When I undertook to ride it with my winter clothing, overcoat, heavy boots, etc., somehow the wheel and I didn't get acquainted. But the warm weather came, so I could put on my light summer clothing, light shoes, etc., and I have just begun to comprehend what it is to fly through the air, with almost nothing to add to the momentum of my own weight. Well, now the wheel and I have become inseparable companions. The old one seems heavy and awkward. In fact, it is just as each succeeding lighter weight has previously thrown the others into the shade. I get on and off now with the greatest ease, and ride as slowly, if necessary, as one would walk, and go around obstacles almost easily and safely. At the same time, when I have a good stretch of road there seems to be almost no limit to the speed that may be attained. By the way, I wonder if the next great move in this world of ours is not going to be along the line of dropping useless weights and encumbrances; or, to put it in a spiritual sense, to "lay aside every weight, and the sin that doth so easily beset us, and run the race that is set before us." Somehow I seem to have gotten my text at the end of my little sermon; but, my good friend, if you do not weigh any more than about 130 or 140 lbs., and if you have never tried an 18-lb. wheel of the present date, let me suggest to you that there is a treat in store for you. By the way, I have not had any long rides yet this season, principally because my presence seems at this season to be so urgently needed every day here at the Home of the Honey-bees.

Kind Words From Our Customers.

The Crane smoker you sent me is the best I ever saw.
W. B. AIRKIN.
Riverside, Tex.

My goods were received O. K. They are the finest I have seen. You may look for my future orders.
HENRY E. LIVELING.
East St. Louis, Ill., April 27.

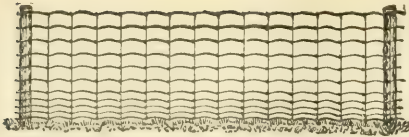
The garden seeds I ordered of you by mail came all right in just four days from the day I ordered them. We get just about twice as many seeds for the money from you as we can at the stores here. Please accept thanks.
MAD TALBERT.
Morristown, Ind., Mar. 11.

The goods ordered Apr. 4th arrived safely and in good condition; also the queen ordered on the 8th. She has been introduced successfully. My reason for ordering goods of you in preference to buying nearer home is, that I am always sure of their coming in good condition.
W. W. CONNER.
Washington, D. C., April 29.

ONE BIG COLONY WORTH TWO OR THREE SMALL ONES.

I make just as few swarms as possible, as one large swarm gathers as much honey as three or four small ones. The bad windy days for handling bees I am busy making or putting together and painting those new hives I got from you, which are the nicest you ever sent me. You have really outdone yourself on this order.
H. T. GIFFORD.
Vero, Fla., April 22.

Your card of the 16th ult. is at hand, also GLEANINGS for March 1st. In reply to your request for posts regarding "hive argument," I say keep it up and we will sift the grain from the chaff. GLEANINGS is getting better each year, and all are given a fair hearing. Bloom is coming on, and bees are rearing brood very fast. Prospects are very good for a fair crop.
J. W. GRIFFIN.
Descanso, Cal., Mar. 8.



"The Battle Is Not To The Strong Alone"

If it were, we would win it just as we do now, for we stand ready to guarantee our fence to be the **strongest** of all wire fences made. We do not ask you to take anybody's figures or tables of tensile strength, but will make a bona fide test of the real article. On the other hand, if a fence must be "vigilant," "active" and "brave," there is no use looking further than the Page. It's the only **live** fence. "Dead" **soft** wire fences are exempt. **PAGE WOVEN WIRE FENCE CO., Adrian, Mich.**

In a recent advertisement we told of our very superior all-steel hand and power feed cutter to be offered at

\$10 worth \$40

Another ad. tells of the process of galvanizing and its indispensable preservative qualities. We also will give you the experience of two representative business firms of Illinois, one of whom has sold 400 and the other 500 Aeromotors. In ad. No. 4 we give a price on the best pumps made, hand, windmill, and irrigation, lower than was ever before dreamed of, and in ad. No. 5 we talk to you of steel galvanized tanks, with covers, at the unheard of price of 2½ cents per gallon. This is cheaper than wood. They do not shrink, leak, rot, rust, or give taste to water. Read all of the Aeromotor ads.

The Aeromotor Company treats the public generously. While state legislatures are passing laws to secure repairs for farm machinery at reasonable prices, **IT IS A FACT THAT THE AEROMOTOR COMPANY HAS FOR THE YEAR 1895 BEEN COMPELLED TO RAISE ITS PRICES ON REPAIRS BECAUSE SOME OF ITS CUSTOMERS HAVE BEEN ORDERING INDIVIDUAL PARTS TO MAKE UP COMPLETE MACHINES, SINCE IN THAT WAY THEY COULD GET A MACHINE CHEAPER THAN BY ORDERING IT ASSEMBLED.** People

are not compelled to buy

parts to buy repairs.

It is in this respect generally so low that customers could buy the repairs and change at less than the machine would cost. But not certain that they assembled in good shape, own reputation, the Aeromotor price of certain repairs in future. Not only has the given the best goods at the lowest price at an invoice, but **TWENTY BRANCH HOUSES THE COUNTRY IN ORDER GOODS EASILY ACCESSIBLE REPAIRS WITHIN EASY TO greatly increase this a matter of the greatest are purchasing machinery. a wise man will look to it that repairs can quickly cost. Our very low prices and high standards on everything connected with water supply and power production by wind, together with the accessibility of a full line of our goods and repairs, will be appreciated.**



machinery; they are compelled to raise their prices.

The Aeromotor Company is not a fault.

It is not certain that they assembled in good shape,

own reputation, the Aeromotor price of certain repairs in future.

Not only has the given the best goods at the lowest price at an invoice, but

TWENTY BRANCH HOUSES THE COUNTRY IN ORDER GOODS EASILY ACCESSIBLE REPAIRS WITHIN EASY TO greatly increase this

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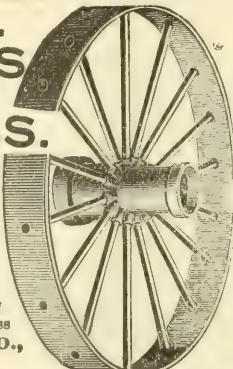
Our very low prices and high standards on everything connected with water supply and power production by wind,

together with the accessibility of a full line of our goods and repairs, will be appreciated.

Aeromotor Co., Chicago.

METAL WHEELS for your WAGONS.

Any size you want, 20 to 56 in high. Tires 1 to 8 in wide—hubs to fit any axle. Saves Cost many times in a season to have set of low wheels to fit your wagon for hauling grain, fodder, manure, bogs, &c. No resetting of tires. Cat's free. Address **EMPIRE MFG. CO., Quincy, Ill.**



In responding to this advertisement mention GLEANINGS.

Promptness is What Counts.

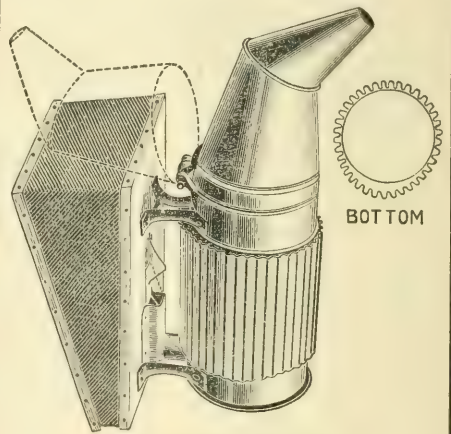
Honey-jars, Shipping-cases, and every thing that bee-keepers use. **Root's Goods at Root's Prices, and the Best Shipping-point in the Country.** Dealers in Honey and Beeswax. Catalog free.

WALTER S. POWDER,
162 Massachusetts Ave., Indianapolis, Ind.
Please mention this paper.



Crane Smoker 1895 Pattern.

This excellent smoker was introduced some two years ago, since which time it has worked itself rapidly into popular favor.



Patented March 12, 1895.

Its Distinctive Feature is the Crane Valve, by which the full force of the bellows is secured without waste, and by which also smoke is prevented absolutely from going into the bellows.

The Legs are of Skeleton Malleable Iron, contracted at the feet so as to be out of the way of the fingers in handling, and are secured to the bellows by bolts instead of screws.

The Shield is of Light Corrugated Tin, and bags next to the bellows, thus giving ample protection from heat.

The Cone Top easily tilts back for replenishing the smoker, and is secured by a malleable-iron hinge, the working parts of which are milled so as to insure accurate adjustment to the stove or cup.

As to Fuel, it will burn any thing, including Soft Coal, Stovewood, Planer-shavings; and it makes no difference how much the latter may be crammed down in the cup, there will be the same strong blast as before.

Price, 3½-inch barrel, \$1.85, post-paid; or \$1.50 by fgt. or exp.

The A. I. Root Company,
Medina, Ohio.

Notice!

We beg to announce that we have completed arrangements with the Porters whereby we secure for this country the control of the sale of that very excellent and almost indispensable implement,

The Porter Bee-Escape.

It will be manufactured by the Porters, as formerly, but write to us for prices in both large and small quantities.

The A. I. Root Co., Medina, O.

Your Orders

for untested Italian queens will be promptly filled by return mail. These queens are carefully reared from fine stock, are large, healthy, and prolific. 75c each; \$8.00 per dozen. Tested, \$1.00 each.

J. W. K. SHAW & CO.,

Iberia Par.

Loreauville, La.

In responding to this advertisement mention GLEANINGS

.....HONEY-MAKERS

Are a strain of Italian bees that we have produced by years of careful breeding. Queens will be ready May 15. Tested queens in May, \$2.00; untested, \$1.00; half-dozen, \$5.00; tested queens in June, \$1.25; untested, 75c; half-dozen, \$4.00. Please state in your order whether imported or golden queens are wanted.

LEININGER BROS., FT. JENNINGS, O.

In responding to this advertisement mention GLEANINGS.

Patents Pending

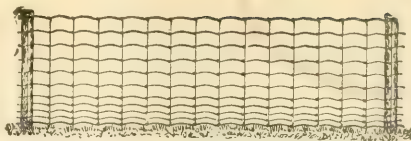
On new process, new machines, new product, in manufacture of comb foundation.

Result:

Lowest prices, best work. Samples and price list free. Wax wanted.

W. J. Finch, Jr.,
Springfield, Ill.

Please mention this paper.



WEAK POINTS IN WIRE FENCES.

1st, **too low!** If less than 5 ft. animals reach, jump or tumble over. 2nd, **cross bars too wide apart.** These add nothing to the strength, simply spread the strain, like the planks on a bridge, and should be close. 3d, **cheap horizontal wires.** No matter how large, a moderate strain stretches them until useless. 4th, **the lack of a reliable, automatic tension device.** End springs, ratchets, etc., can only affect near by panels. You can learn the remedy by addressing

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

In responding to this advertisement mention GLEANINGS

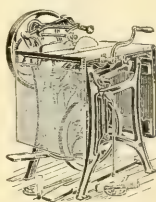
Imported

Italian Queens of '95 rearing, after May 15, \$3.00 each; tested, now, \$1.50 to \$2 each. W. C. FRAZIER, Atlantic, Iowa.

H·O·N·E·Y!

If we would be successful in the production of honey it is of vital importance that our queens be first class. After an extended experience with the different races of bees brought to this country, I am led to believe, all things considered, that these direct from Italy have never been improved upon. Large yellow prolific queens from imported mothers, mated to drones of imported stock from a different source, securing a direct cross. Untested, ready May 25, 75c; 6, \$4.25; 12 for \$8.00. Select untested, \$1.00. No disease.

L. H. ROBEY, Worthington, W. Va.



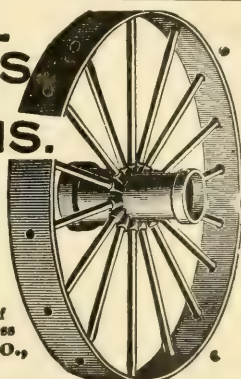
ONE MAN WITH THE UNION COMBINATION SAW

Can do the work of four men using hand tools, in Ripping, Cutting off, Mitering, Rabbeting, Grooving, Gaining, Dadoing, Edging-up, Jointing Stuff, etc. Full Line of Foot and Hand Power Machinery. Sold on Trial, Catalog Free. 1-24ci

SENECA FALLS MFG. CO.,
44 Water St., Seneca Falls, N.Y.

METAL WHEELS for your WAGONS.

Any size you want, 20 to 56 in high. Tires 1 to 8 in wide—hubs to fit any axle. Saves Cost many times in a season to have set of low wheels to fit your wagon for hauling grain, fodder, manure, bogs, &c. No resetting of tires. Cat'g free. Address
EMPIRE MFG. CO.,
Quincy, Ill.



In responding to this advertisement mention GLEANINGS.

BEE-KEEPERS' SUPPLIES FOR 1895.

Such as Dovetailed Hives, Sections, Comb Foundation, Extractors, and every thing else used by a bee-keeper. All late improved goods. Immense stock. Goods sold at wholesale and retail. Write for our

DISCOUNTS FOR EARLY ORDERS.

Alsike clover and Japanese buckwheat furnished at lowest market price.

Address JOSEPH NYSEWANDER, Des Moines, Iowa.
In writing advertisers please mention this paper.

HONEY COLUMN.

CITY MARKETS.

KANSAS CITY.—*Honey.*—The stock of comb honey is large; market well supplied. Fancy white 1-lb. combs, 13; amber, 11. Receipts of extracted, white, 7; amber, 5½@6; Southern, 4½@5. Beeswax, 22.
HAMLIN & BEARSS,
Kansas City, Mo.

CHICAGO.—*Honey.*—There is not much honey being sold, and prices remain as formerly reported. Such white comb as we have of good quality sells at 14c; but there is a prospect that the market is going to be cleaned out before new crop. Extracted brings 5½@7. Beeswax, fair grade, 30c.

R. A. BURNETT & CO.,
163 So. Water St., Chicago, Ill.

DETROIT.—*Honey.*—Honey is somewhat neglected. Prices lower, with little good in sight. Best white comb honey 13@14; dark lots at buyers' prices. Extracted, 6@7. Beeswax, 29@30.

M. H. HUNT,
Bell Branch, Mich.

CLEVELAND.—*Honey.*—Our honey market is very slow. No. 1 white, in 1-lb. sections, 12@13c; No. 2, 11; extracted, No. 1 white, 7@8. Beeswax, 28c.

WILLIAMS BROS.,
80 & 82 Broadway, Cleveland, O.

CINCINNATI.—*Honey.*—The market is quiet. No change since our last. We quote choice comb honey at 12@16c. Extracted honey at 4@7. Demand is good for beeswax at 25@31 cts. on arrival for good to choice yellow.
CHAS. F. MUTH & SON,
Cincinnati, O.

ST. LOUIS.—*Honey.*—The market for strained honey in barrels and cans is more active—prices, however, not improving. We quote comb, 10@12; extracted, in cans, 5½@6½; in barrels, 4½@5. Prime beeswax, 27.
D. G. TUTT GROCER CO.,
St. Louis, Mo.

KANSAS CITY.—*Honey.*—The demand for comb honey is light; considerable on the market. Receipts of extracted light, demand fair. We quote No. 1 white comb, 13@14; No. 2, 1-lb., 12@13; No. 1 amber, 12@13; No. 2, 8@10; extracted, 5@7. Beeswax, 25.
C. C. CLEMONS & Co.,
Kansas City, Mo.

PHILADELPHIA.—*Honey.*—Comb honey finds little or no sale now in large city. Extracted is selling freely. We quote comb honey, 9; extracted, 5½. Beeswax, 30c for clear yellow.

WM. A. SELSER,
10 Vine St., Philadelphia, Pa.

BUFFALO.—*Honey.*—The honey market is very active and sales are light. Fancy, 12@13; choice, 10@11. Most of the stock on hand is tail ends of shipments. Cleaning up at irregular prices. Buckwheat, very slow sale at prices ranging from 6@8c. Extracted is dull. Beeswax, 28@30c.

BATTERSON & Co.,
Buffalo, N. Y.

BOSTON.—*Honey.*—Our honey market is quiet and without change. We quote your market at 13 @14 for best 1-lb. comb honey, and 5@6 for extracted, with light demand.
E. E. BLAKE & Co.,
Boston, Mass.

ALBANY.—*Honey.*—Our market is well cleaned up on both comb and extracted honey. We have a small stock of buckwheat, but no clover on hand. There is but very little demand, and prices remain unchanged. Have had some correspondence with Florida parties desiring to ship new honey.

CHAS. McCULLOCH & Co.,
Albany, N. Y.

SAN FRANCISCO.—*Honey.*—The prospects for the coming honey crop are good, and we expect to ship large quantities of California honey to the East. I quote to-day: New extracted honey, light amber, 5c; white, 5½. White comb, 1-lb. frame, 10. Beeswax, 26@27.

HENRY SCHACHT,
Successor to Schucht, Lemcke & Steiner,
San Francisco, Cal.

NEW YORK.—*Honey.*—All grades of white comb honey are well cleaned up. Considerable buckwheat is yet on the market, and, as the demand is about over, some of it will probably be carried over. We quote white, 10@12, and buckwheat 7@8. There is a fairly good demand, principally for California, of which there is more than a sufficient supply to meet the demand. New crop southern is arriving quite freely. We quote: California, 5½@6; white-clover and basswood, 6; buckwheat, 5; southern, common to fair, per gallon, 45@50; choice, 55@65. While beeswax holds firm at 31@32, we think the market has reached top prices, and do not expect it to advance any further.

HILDRETH BROS. & SEGELKEN,
120 & 122 W. Broadway, New York.

ALFALFA IN ARIZONA.—We will sell you alfalfa honey F. O. B. Phoenix at 4½c in 1000-lb. lots or more. Less than 1000 lbs. at 5c in five-gallon cans. Car lots a specialty.

J. P. IVY,
Secretary Bee-keepers' Association,
Phoenix, Maricopa Co., Arizona.

ALFALFA HONEY, very white, thick, and rich. Two 60-lb. cans at 7c. Same, partly from cleome (tinted), 6c. Samples, 8c.

OLIVER FOSTER, Las Animas, Col.

No. 1 extracted honey in 50-lb. pails at 7c per lb.—\$3.50. J. B. MURRAY, Ada, O.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb and Prompt.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must say you want your advt in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices of offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 6 and 12 inch Root foundation mills for wax, honey, or offers.
I. J. STRINGHAM, 105 Park Place, New York, N. Y.

WANTED.—To exchange supplies and other goods for honey. O. H. HYATT, Shenandoah, Iowa, 20tf

WANTED.—To exchange a quantity of carpenters' tools, also Barred Plymouth Rock eggs for nuclei.
F. L. WOTTON, Darien, N. Y.

WANTED.—To exchange golden queens for Pekin ducks, Embden geese, fancy poultry, buckwheat.
J. F. MARKE,
Greenville, Darke Co., Ohio.

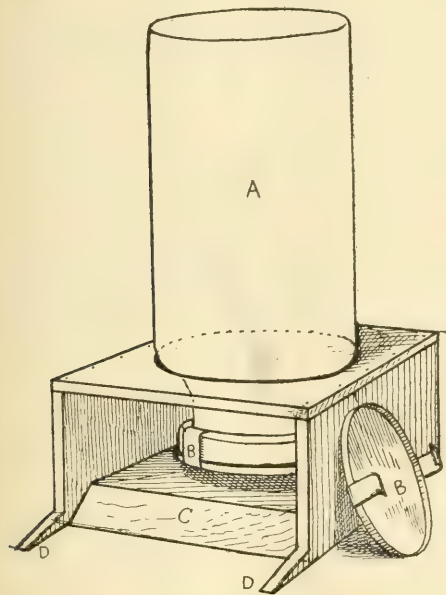
WANTED.—To exchange 26-in. planer, power scroll saw, all iron; tenoner, and mortiser, for portable sawmill, or other wood-working machinery. Will give a bargain for cash.
eif GEO. RALL, Frenchville, Trempe Co., Wis.

WANTED.—To exchange my fine English mastiff pups and collie shepherds, for something useful. They are the best stock.
SCOTT BRILLHART, Millwood, Knox Co., Ohio.

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Boardman's Bee-Feeder.



You can not afford to let your bees run down before the honey-flow begins. By stimulative feeding you can have a strong working force of bees ready for business in honey harvest. For feeding under all conditions, and especially for stimulative feeding, there is no feeder quite as safe and convenient as the

Boardman Feeder.

I am prepared to furnish them in large and small quantities. Particulars and prices on application to

H. R. BOARDMAN,

East Townsend, - - Huron Co., - - Ohio.

☞ In responding to this advertisement, mention GLEANINGS

FOR SALE.—JAPANESE BUCKWHEAT, 75 CTS. PER BUSHEL.
A. P. LAWRENCE,
HICKORY CORNERS, MICH.

Black and Hybrid Queens For Sale.

100 black, hybrid, and mismatched queens for sale; 30c each; \$3.00 per doz.

H. L. WEENES, Hanford, Cal.

"The Southland Queen."

Send \$1.00 for the Southland Queen. Edited by the Atchley family. Plain, practical, and all fresh bee matter. Jennie Atchley will begin a Bee-keeping school in June 15th No. All that wish lessons, come in. A steam bee-hive factory, Root's goods, Dadant's foundation. Send for free catalog and sample journal.

THE JENNIE ATCHLEY CO.,
Beeville, Bee Co., Texas.

CASH FOR BEESWAX

Will pay 25c per lb. cash, or 28c in trade, for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 33c for best selected wax. Old combs not be accepted under any consideration.

Unless you put your name on the box, and notify us by mail of amount sent, we can not hold ourselves responsible for mistakes. It will not pay as a general thing to send wax by express.

THE A. I. ROOT CO., Medina, O.

Second-Hand Bicycles Cheap.



We have the following second-hand bicycles for sale at the prices stated:

One ladies' Victoria, last year's model, made by the Overman Wheel Company; has been used but little, and cost last year \$125.00. Will sell for \$65.

One ladies' Monarch, last year's model, for \$55.

One ladies' Columbia, '92 pattern, in perfect running order, tires in good condition; price \$37.50.

One gent's Columbia, '93 pattern, also in perfect order, with new tires, and newly enameled, \$47.50.

One gent's Monarch, '93 pattern. This wheel has had considerable use, but is in good condition. Has had new tires recently; weighs about 30 lbs. \$45.

One gent's Lovell Diamond, '93 pattern. Fitted with new tires and pedals last fall. Weighs about 31 lbs. In excellent condition, and a bargain at the price. \$40.

We have also one \$16.00 shot-gun, nearly new, 12 bore, breech-loading, top action; barrels perfect, and without a spot inside or out; modified choke; for only \$11.

Will take white honey or wax in trade, f.o.b. at Medina, for any of above goods.

THE A. I. ROOT CO., Medina, Ohio.

A KIND WORD FOR THE BOOK "THE CHRISTIAN'S SECRET OF A HAPPY LIFE."

The following is from a private letter to one of the teachers in the Medina schools, and was not written for publication.

Dear Sarah:—I much wish to give a number of Japanese of my acquaintance, who read English, the book Christian's Secret of a Happy Life. I know of nothing that is more needed in Japan than such teaching as that. Our best (or, rather, leading) men are doubting or unbelieving in the divinity of Christ, the resurrection, the personality of God, etc., so that it seems as if they had no greatly different foundation from Buddhists. A lack of spirituality and vital faith in a living Savior is, I believe, the root of the difficulty. I am having the book translated into Japanese, but it will take a good while to get it done, and I want to give one or two discouraged friends (pastors) the book right away.

H. FRANCES PARMELEE.

Maebashi Joshu, Japan, April 23.

[Our missionary friend has, without knowing it, given us one of the grandest testimonials for this good book I have ever seen, for it does indeed strike directly at the root of the matter. I am afraid that right here in America as well as in Japan we have "discouraged pastors;" and this book, "The Christian's Secret of a Happy Life," has a most kind and genial rebuke to all such. "O thou of little faith! wherefore didst thou doubt?"]

A. I. R.

Books for Bee-Keepers and others.

Any of these books on which postage is not given will be forwarded by mail, postpaid, on receipt of price.

In buying books, as every thing else, we are liable to disappointment if we make a purchase without seeing the article. Admitting that the bookseller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. I very much desire that those who favor me with their patronage shall not be disappointed, and therefore I am going to try to prevent it by mentioning all the faults, so far as I can, that the purchaser may know what he is getting. In the following list, books that I approve I have marked with a *; those I especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines; ‡; foreign, §. The bee-books are all good.

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice, that you can judge of the size of the books very well by the amount required for postage on each.

- 8 Bible, *good print*, neatly bound..... 20
 - 10 Bunyan's Pilgrim's Progress**..... 30
 - 20 Illustrated Pilgrim's Progress**..... 75
- This is a large book of 425 pages and 175 illustrations, and would usually be called a \$2.00 book. A splendid book to present to children. Sold in gilt edge for 25c more.

6 First Steps for Little Feet. By the author of the Story of the Bible. A better book for young children can not be found in the whole round of literature, and at the same time there can hardly be found a more attractive book. Beautifully bound, and fully illustrated. Price 50 c. Two copies will be sold for 75 cents. Postage six cents each.

- 5 Harmony of the Gospels..... 35
- 3 John Ploughman's Talks and Pictures, by Rev. C. H. Spurgeon*..... 10
- 1 Gospel Hymns, consolidated Nos. 1, 2, 3, and 4, words only, cloth, 10 c; paper..... 05
- 2 Same, board covers..... 20
- 5 Same, words and music, small type, board covers..... 45
- 10 Same, words and music, board covers..... 75
- 3 New Testament in pretty flexible covers..... 05
- 5 New Testament, new version, paper covers..... 10
- 5 Robinson Crusoe, paper cover..... 10
- 4 Stepping Heavenward**..... 18
- 15 Story of the Bible**..... 1 00

A large book of 700 pages, and 274 illustrations. Will be read by almost every child.

- 5 The Christian's Secret of a Happy Life**..... 25
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- British Bee-keeper's Guide Book, by Thos. William Cowan, England..... 40
- 3 Merrybanks and His Neighbor, by A. L. Root..... 15
- 4 Winter Problem in Bee-keeping, by Pierce..... 46

MISCELLANEOUS HAND-BOOKS.

- 5 An Egg-Farm, Stoddard**..... 45
 - 1 Amateur Photographer's Hand-book**..... 70
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The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once, without any assistance except from the book.

- 8 Domestic Economy, by I. H. Mayer, M. D.** 60
- This book ought to save at least the money it costs, each year, in every household. It was written by a doctor, and one who has made the matter of domestic economy a life study. The regular price of the book is \$1.00; but by taking a large lot of them we are enabled to make the price only 60 cts.

- 10 Draining for Profit and Health, Warring..... 1 50
- 10 Fuller's Grape Culturist**..... 1 40
- 5 Farming for Boys*..... 75

This is one of Joseph Harris' happiest productions, and it seems to me that it ought to make farm-life fascinating to any boy who has any sort of taste for gardening.

- 7 Farm, Gardening, and Seed-Growing*..... 90
- This is by Francis Brill, the veteran seed-grower, and is the only book on gardening that I am aware of that tells how market-gardeners and seed-growers raise and harvest their own seeds. It has 166 pages.

- 12 Gardening for Pleasure, Henderson*..... 1 85
- While "Gardening for Profit" is written with a view of making gardening pay, it touches a good deal on the pleasure part; and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 404 pages and 203 illustrations.

- 12 Gardening for Profit..... 1 85
- The latest revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward making market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments, but no one can afford to buy but one book, let it be the above. It has 376 pages and 138 cuts.

- 1 Gardening for Young and Old, Harris**..... 1 25
- This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as to the old is a great thing to be kept in view. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

- 10 Garden and Farm Topics, Henderson**..... 75
- Gray's School and Field Book of Botany..... 1 80
- 5 Gregory on Cabbages; paper*..... 25
- 5 Gregory on Squashes; paper*..... 25
- 5 Gregory on Onions; paper*..... 25

The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

- 10 Greenhouse Construction**..... 1 40
- This book, by Prof. Taft, is just out, and is as full and complete in regard to the BUILDING of all glass structures as is the best book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

- 15 How to Make the Garden Pay**..... 1 35
- By T. Greiner. This is a new book, just out, and it gives the most explicit and full directions for gardening under glass of any book in the world. Those who are interested in hot-beds, cold-frames, cold-greenhouses, hot-houses or glass structures of any kind for the growth of plants, can not afford to be without the book.

- 1 Handbook for Lumbermen..... 10
- 10 Household Conveniences..... 1 40
- 2 How to Propagate and Grow Fruit, Green*..... 15
- 2 Injurious Insects, Cook..... 25
- 10 Irrigation for the Farm, Garden, and Orchard, Stewart*..... 1 40

This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills, to beat the place of rain, during our great drought, is a great problem before us at the present day. The book has 274 pages and 142 cuts.

- 5 Manures; How to Make and How to Use them; in paper covers..... 45
- 6 The Same in cloth covers..... 65

Covering the whole matter, and discussing every thing to be found on the farm, refuse from factories, mineral fertilizers from manure, and a complete summing-up of the whole matter. It is written by F. W. Semper.

- 7 Market-gardening and Farm Notes, by Burnett Landreth..... 90

The Landreths are the pioneer seedsmen of America; and the book is worth fully as much as we might expect it to be. I think I received it from it worth its price, before I had been in my hands fifteen minutes. It is exceedingly practical, and tells what has been done and what is BEING done, more than it discourses on theory.

- 3 Maple Sugar and the Sugar-bush**..... 35
- By Prof. A. J. Cook. This was written in the spring of 1887 at my request. As the author has, perhaps, one of the finest sugar-camps in the United States, as well as being an enthusiastic lover of all farm industries, he is better fitted, perhaps, to handle the subject than any other man. The book is written

in Prof. Cook's happy styl combining wholesome moral lessons with the latest and best method of managing to get the finest syrup and maple sugar, with the least possible expenditure of cash and labor. Everybody who makes sugar or molasses will save the sugar-book. It has 42 pages and 35 cuts.

1 | Our Farming, by T. B. Terry**..... \$2.00
in which he tells "how we have made a run-down farm bring both profit and pleasure."

This is a large book, 6x9 inches, 367 pages, quite fully illustrated. It is Terry's first large book; and while it touches on the topics treated in his smaller handbooks, it is sufficiently different so that no one will complain of repetitiveness, even if he has read all of Terry's little books. I should call it the brightest and most practical book on farming before the world at the present day. The price is \$2.00 postpaid; or clubbed with GLEANINGS for 2.50. Those who are already subscribers to GLEANINGS may have it postpaid by sending us 1.50 more. We are so sure it will be worth many times its cost that we are not afraid to offer to take it back if any one feels he has not got his money's worth after he has read it. If ordered by express or freight with other goods, 10c less.

3 | Onions for Profit**..... 45
Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with the enthusiasm and interest that characterize its author, T. Greiner. Even if one is not particularly interested in the business, almost any person who picks up Greiner's books will like to read them through.

1 | Poultry for Pleasure and Profit**..... 10
11 | Practical Floriculture, Henderson*..... 1 35
10 | Profits in Poultry*..... 90
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By Fanny Field. This is a 25-cent book which we offer for 10 cts.; postage, 2 cts.

4 | Peabody's Webster's Dictionary..... 10
Over 30,000 words and 250 illustrations.

2 | Rats: How to Rid Farms and Buildings of them, as well as other Pests of like Character..... 15

This little book ought to be worth dollars instead of the few cents it costs to any one who has ever been troubled with these pests, and who has not! It is written in such a happy vein that every member of the family will read it clear through, just about as soon as they get hold of it. It contains a complete summing up of the best information the world can furnish.

1 | Silk and the Silkworm..... 10
11 | Small-Fruit Culturist, Fuller..... 1 40
10 | Success in Market-Gardening*..... 90

This is a new book by a real, live, enterprising, successful market-gardener who lives in Arlington, a suburb of Boston Mass. Friend Rawson has been one of the foremost to make irrigation a practical success, and he now irrigates his grounds by means of a windmill and steam-engine whenever a drought threatens to injure the crops. The book has 208 pages, and is nicely illustrated with 110 engravings.

1 | Ten Acres Enough..... 1 00
1 | Talks on Manures*..... 1 75

This book, by Joseph Harris is, perhaps, the most comprehensive one we have on the subject, and the whole matter is considered by an able writer. It contains 366 pages.

2 | The Carpenter's Steel Square and its Uses..... 15
10 | The New Agriculture; or, the Waters Led Captive..... 75

2 | Treatise on the Horse and his Diseases..... 10
5 | Tile Drainage, by W. I. Chamberlain..... 35
Fully illustrated, containing every thing of importance clear up to the present date.

The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as in doing almost any thing else; and by following the plan directed in this book, one man will often do as much as two men without this knowledge. The book embraces every thing connected with the subject, and was written by the author while he was engaged in the work of digging the ditches and laying the tiles HIMSELF, for he has laid literally miles of tile on his own farm in Hudson, O.

5 | Tomato Culture..... 35

In three parts. Part first—by J. W. Day, of Crystal Springs, Miss., treats of tomato culture in the South, with some remarks by A. I. Root, adapting it to the North. Part second—By D. Cummins, of Conneaut, O., treats of tomato culture especially for canning-factories. Part third—By A. I. Root, treats of plant-growing for market, and high-pressure gardening in general. This little book is interesting because it is one of the first rural books to come from our friends in the South. It tells of a great industry that has been steadily growing for some years past; namely, tomato-growing in the South to supply the Northern markets. The little book, which is fully illustrated, gives us some pleasant glimpses of the possibilities and probabilities of the future of Southern agriculture. Even though you do not grow tomatoes to any considerable extent, you will find the book brimful of suggestions of short cuts in agriculture and horticulture, and especially in the line of market-gardening.

3 | Winter Care of Horses and Cattle..... 35
This is friend Terry's second book in regard to matters of this kind, but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in the book. It has 44 pages and 4 cuts.

3 | Wood's Common Objects of the Microscope**..... 47

8 | What to Do and How to be Happy While Doing It, by A. I. Root..... 50

THE A. I. ROOT CO., MEDINA, O.

B EES, 60 Cents a Pound, this month.

T. P. Andrews, Farina, Fay, Co., Ill.

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Send your orders to W. H. Laws for Italian Queens?

THE BEST IS THE CHEAPEST.

For beauty and business you can't beat them. The leading bee-keepers of the U. S. are my customers, and all praise them. I breed either the Golden or Leather-colored strains.

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To suit the times. Fine breeders always on hand, \$2 to \$3. Untested, 75c; 3 for \$2. Tested, \$1; 6 for \$5. Address

W. H. LAWS, LAVACA, ARK.
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Look Here, Bee-keeper!

If you are in need of bee-supplies, write for catalog and price list. Every thing sold as cheap as the cheapest.

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A Tested Queen Free!



Pure Italians. To every one buying 1½ doz. untested queens I will give a tested one free. Untested, 60c; tested, \$1.00; selected tested, \$1.50; breeders, \$3.00.

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Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "Practical Hints" will be mailed for 10c in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.

Given Foundation

Ready for Delivery.

We are now making, as previously announced, Given foundation on rolls. We can supply the product at the same price as the regular wax. Customers who desire a small quantity to experiment with can have a little added to the regular foundation if they will so specify in their orders. We neither indorse nor condemn it, but hope it will be tried sufficiently to test its merits. The surplus Given has extra thin bases. **The A. I. Root Co., Medina, O.**

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45,000 Lbs. of Honey in 1894.

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ITALIAN BEES Ready in May. Queens, \$1.00. Bees by the pound, \$1.00. One-

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Eggs From 8 leading varieties of fowls, including Imperial Pekin Ducks. Send for descriptive list to **J. S. MASON, Medina, O.**

In writing advertisers mention this paper.

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Are usually sold for \$2.00. I will explain why I wish to sell a few at less than that. As most of my readers know, I require my apiary each spring with young queens from the South. This is done to do away with swarming. If done early enough it is usually successful. It will be seen that the queens displaced by these young queens are never more than a year old; in fact, they are fine, tested, Italian queens, RIGHT IN THEIR PRIME; yet, in order that they may move off quickly, and thus make room for the untested queens, they will be sold for only **ONE DOLLAR**. Or I will send the **REVIEW** for 1895 and one of these queens for only \$1.75. For \$2.00 I will send the **REVIEW**, the queen, and the book "Advanced Bee Culture." If any prefer the young, laying queens from the South, they can have them instead of the tested queens, at the same price. A discount on large orders for untested queens. Say how many are wanted, and a price will be made. Orders can be filled as soon as it is warm enough to handle bees and ship queens with safety.

W. Z. HUTCHINSON, Flint, Mich.

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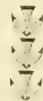
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2-frame nucleus with untested queen \$2 50
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Every thing shipped from this city. Catalog free.

I. J. STRINGHAM, 105 Park Place,
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Send for circulars and prices to

T. F. Bingham,
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QUEENS. IMPORTED ITALIAN MOTHERS ONLY.

Untested, 55 cts.; doz., \$6. About 11 out of every 12 will make fine tested queens, and for gentleness and industry we defy the world to beat them. Safe delivery. Money-order office, Decatur, eif

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NEAR PHILADELPHIA.

Favor is
Deceitful,
Beauty is
Vain.

New York Queens.

The beautiful yellow bee is going. I have a strain of bees, hereafter I shall keep. It is the coming bee for our Northern climate for longevity, and perfect white-capped honey; hardy and prolific. Queens, \$1.00 each. Having two apiaries, can sell yellow Italians. Queens, \$1.00 each.

MRS. OLIVER COLE,
Sherburne, Chenango Co., N. Y.

World's Fair Medal

Awarded my **Foundation**. Send for **free samples**. Dealers, write for wholesale prices. Root's new **Polished Sections** and other goods at his prices. **Free Illustrated Price List** of every thing needed in the apiary. **M. H. Hunt.**
Bell Branch, Mich.

NON-SWARMING and NON-STINCING.

June 1 shall commence to ship queens and bees from my famous yellow-banded strains. Queens, \$1.00 each. I never had a swarm of bees from one strain that has been in my apiary six years. No charge unless queens are satisfactory.

H. ALLEY, Wenham, Essex Co., Mass.

One-piece Sections, Cheap!

In order to reduce stock, we offer No. 1 **Cream Sections**, 4½x4½x7 to foot, 1½, 1½, 1½, and 2 inch:

1000 for \$1.50,
5000 at 1.40 per M.,
10000 " 1.35 " "

We also offer No. 1 **White Sections**, 5½x6½x2, open on two 5½ sides:

1000 for \$2.50,
5000 at 2.35 per M.,
10000 " 2.25 " "

G. B. Lewis Co., Watertown, Wis.

In responding to these advertisements mention this paper.



Vol. XXIII.

JUNE 1, 1895.

No. 11.

FEEDING.

HOW THE AXTELLS DO IT.

By Mrs. L. C. Axtell.

Spring and summer feeding of bees is so much easier done by feeding out of doors that we feed that way almost exclusively unless we know of a hive or more that is clear out, and then we give a comb of honey or one good feed in the hive at night. We keep our feeder at the east side of our honey-house, where the water runs off the house and keeps it full of fresh clean water whenever it rains, and this helps to keep water out for the bees, and at the same time keeps the feeder from drying up if we forget to keep water in it. Just now we are feeding only by putting the syrup in feeders in the evening, and on top of the feeder we set some black sections of honey-dew, as we don't care to feed much honey-dew by itself; then we cover over the feeder so as to shed off the rain should it come in the night. The bees work at the feed late in the evening and early in the morning, and have it all taken up before the neighbors' bees, two or three miles away, come around, and then they have the day to go to the woods and orchards.

WINTER FEEDING.

We always feed in the hives, as generally half or more of the colonies have enough. Often only a very few will need any, and the very best and cheapest feeder we can get hold of is a large tin pan set on the frames with a thin cloth like a flour sack put into the pan, and then filled up with syrup as thick as will dissolve sugar by stirring cold water into sugar and letting stand a few minutes to settle. We then pour off the clear liquid. We do not even heat the water any more, as it is so much less work. If we have any extracted honey we care to use, a little of that mixed with the winter feed, we think, makes it all the better, as it will keep it from candying in the combs; and yet we have not been able to observe any bad effects from feeding clear sugar. Bees winter all right upon granulated sugar if fed not later

than Sept. 15; yet I believe it pays better to feed in August, and let them seal their combs over thoroughly.

LATE FUSSING WITH BEES.

I am inclined to think, is very injurious; at any rate, our bees winter ever so much better, all things else being right, since we quit bothering their brood-nest in the fall. The honey may be taken off the top, and not seem to hurt them; but if they have a good queen, and get the hive well filled with honey before cold weather, and left alone without opening up the brood-nest, and are properly protected in winter, such colonies almost invariably come through safely.

UNITING WEAK COLONIES.

Doing this in the spring is not very satisfactory. We have about come to the conclusion that, if they can care for their queen, it is better to let them alone unless we have queenless colonies, and then they may be united to advantage with a weak one that has a queen. Feeding out of doors does more to build up weak colonies, and give them heart and health, than uniting. We crowd them down on to two or more combs, cover up warm, and let them alone.

TO MAKE BEES GENTLE TO HANDLE, WHEN WE HAVE TO HUNT OUT THE QUEEN TO CLIP HER WINGS.

When there is no honey coming in, there is nothing like feeding thin sugar syrup—merely water a little sweetened, and give them all they will take.

In all my foregoing remarks I would not have it understood that I believe in feeding sugar to have it stored in sections. I think that is wicked, and should be classed with other sins, such as stealing, etc.; but there is no need of getting a particle of sugar syrup in sections if we understand the habits of bees, and feed only when they would not store in sections, or when there are none on the hive. We can be honest or dishonest in every thing.

Our bees have wintered unusually well, having lost but one colony out of 115, and it was queenless, though there are quite a number



that are weak, but many very strong for this time of the year. Some of our neighbors report heavy losses; but I think it was where the bees were not properly prepared for winter. A person who does not understand bees, and will not take pains to learn their habits, it is just as well, and better, for his bees to be in good-sized box hives where their owner can not rob them very easily. They can get surplus by setting a box on top of the hive, with some white comb stuck into the box for starters, or they may stick comb or foundation into sections, and set into the box; but before setting on the box, large holes should first be made in the top of the hive—the larger the more readily will the bees go up to work.

A deep jar makes a good feeder of water. Put into it a handful of salt, and take a clean gunny sack and wet it and hang it in the jar, letting one end hang over on the outside. It acts as a syphon, and keeps wet, even on the outside, and no bees are drowned or chilled, as they are in all open water in cool weather. It being in a jar, the poultry can not get the salted water to drink. I don't know that it would hurt them, but I have been told it would.

I should have stated, that, when feeding bees for winter, the rest of the frames should be covered where the pan was set on except some little openings around the pan, and the cloth should reach over the side of the pan down to the frames; and over the pan lay a block to keep the quilt up out of the syrup, and cover all snug and warm. By feeding in a tin pan there is no leaking, as there almost always is with all wooden feeders.

THE HILL FEEDER.

If not taken off the hives as soon as empty, the bees seal up the little perforations or holes so the syrup can not get out quick enough, and so sours if filled the second time, unless they are heated and rubbed clean with cloth or paper, which takes time.

SPRAYING FRUIT-TREES WHILE IN BLOOM.

I think every bee-keeper should have an item put into his county or town paper, not to spray fruit-trees while in bloom. I feel certain our bees have been injured two different years in that way. Our bees took to dying off just about fruit-bloom; and a little after there would be but very few old bees left in the hives—lots of capped and hatching brood; and as I did not know of any of our neighbors spraying their fruit-trees I thought we killed them ourselves by spraying after the petals had fallen; but I have since learned that one of our neighbors did spray while in bloom. He said he did not know it would do harm. Spraying while fruit is in bloom has been talked and written about so much one would think every farmer would know better; and yet there are some who never read any but their local papers, and don't seem to know any better.

Roseville, Ill.

WINTER REPOSITORIES.

THE UPGROUND AND THE UNDERGROUND, AND THE ADVANTAGES OF EACH COMPARED, AND WHY THE FORMER IS PREFERRED: DOES THE MATTER OF MOISTURE HAVE ANY BEARING ON THE SUCCESS OF WINTERING? A VERY VALUABLE AND INTERESTING ARTICLE FROM THE MAN WITH THE REPUTATION OF ALWAYS WINTERING HIS BEES.

By H. R. Boardman.

Friend Boardman:—I shall probably lose 20 per cent of my bees in my home apiary, owing to the honey candying in the combs, as I think. You fellows who winter in regular bee-repositories will come through this hard winter with flying colors as usual, I suppose. Well, you have got the trade learned, and understand just the conditions needed for successful wintering indoors. If I had a perfect bee-cellar I should like to try wintering in that way, but am fearful I should not succeed in building a perfect one, nor succeed in controlling the temperature or the humidity. But now comes Doolittle (see GLEANINGS, page 59, current volume) with an article claiming that moisture does no harm in a bee-cellar providing the temperature does not run down too low. I had supposed that a bee-cellar should be dry; and as I have understood that yours was always dry I should like to know if you think this dryness essential to success, as I know that no one has had better success in wintering than yourself. Suppose you give us your views through GLEANINGS, on the proper conditions necessary for indoor wintering. CHALON FOWLS.

Oberlin, O., Mar. 25.

"Many seem to suppose that a bee-cellar in which bees are wintered should be dry in all its parts."—Doolittle in GLEANINGS, Jan. 15, page 59.

That hits me. I must own up I am one of those fellows. I have for many years had a very comfortable conviction that, in order to secure the best results in the bee-cellar, it should be dry in all its parts, and I have always tried to secure this condition as far as possible. That they do winter well in a moist or even wet repository is not new to me. But I am not quite ready to admit that the moisture contributes to the success of wintering.

Mr. Doolittle describes his cellar as not only moist but wet—actually wet and dripping, and filled with mold—sometimes great patches of mold on the walls as big as a hat-crown, and ready to seize upon the combs in the hives when not protected (see GLEANINGS for Feb. 15, 1894) and upon every thing where it could get a foothold. The glowing terms with which Mr. D. describes the nice condition of his bees in

this wet cellar is quite captivating, and might give others the bee-fever as well as himself; and I fear it might also mislead some to give the whole credit to the moisture. James Heddon reported a similar experience years ago, but not to advocate moisture as the most favorable condition, that I remember, but as an argument bearing upon the pollen theory.

The astonishing part to me is, that Mr. Doolittle goes on record as favoring such a condition—see *GLEANINGS*, 1894, Feb. 15. Mr. D.'s reports give him a good record for wintering his bees in this same moist cellar, except one winter when he reported a serious loss attributed by him to an oil-stove which he had placed in the cellar, to overcome the low temperature, I suppose. With his experience and sound judgment in such matters I feel sure that his good record will continue unbroken in wintering in this same cellar unless something unforeseen should turn up. But would it be safe to trust the novice in his place? I think not. Without the knowledge of the requirements of such a repository I think it would be unsafe and uncertain.

But what reason has Mr. D. for thinking that bees will winter better in a moist or wet atmosphere than a dry one? He probably has reasons, but he gives none except the excellent condition in which he describes his bees. Has he any assurance that they would not winter as well, or even better, if his cellar had been dry instead of wet? To those who contemplate building a wintering-repository, it is a question of first importance how to secure the most favorable conditions.

MY OWN EXPERIENCE.

Of the four wintering-repositories that I used for quite a number of years, I had but one that I considered perfect. This one is absolutely dry in every part, and mold rarely ever gets into it. It is in such perfect condition in this respect that combs and honey stored in it keep in good condition at all seasons. My section honey I have kept here for many years. This is my home bee-house, planned and built expressly for the purpose. My other bee-repositories were improvised. About 200 colonies I consider the utmost capacity of my home bee-house; 150 to 160 is about the average number that I have wintered in it for years. This gives 75 to 80 colonies in each of two rooms, making what I consider a well-balanced proportion of colonies to the size of the rooms, which is of much importance. Now, I am sure that this bee-house could not winter better with a moist atmosphere instead of a dry one. Every colony put into it in November in normal condition I expect to come out in the spring in just as good condition as when put in. Even light nuclei winter just as well as strong colonies. I attribute the perfect wintering qualities of this bee-house largely to its dryness and wholesome sanitary conditions. It is not entirely secure

against outside changes of temperature, but varies considerably. It is sufficiently protected to avoid sudden changes and extremes, and is perfectly safe for a short time between the extremes of 35° and 60°. Uniformity I do not consider important. The regulation 45° is, no doubt, about right. A high temperature is much safer than a low one in any bee-repository. Artificial heat I know to be a good thing; and in the building of a bee-house I would advocate some provision for it. The absence of mold may be partly due to the fumigating with sulphur which I frequently give the rooms for the benefit of the honey and combs stored in them during the warm season. Two of the four repositories mentioned were very good cellars under dwelling-houses. These were walled up in the usual way with stone. In each of these I made a room of the size which I thought I would need for my bees by means of a partition of matched ceiling. When I had them finished I thought they would be good wintering-repositories for the bees. But I have never been able to winter in them as perfectly as in the home bee-house. Although not as wet as Mr. D. describes his to be, they would always accumulate some moisture; and the combs not protected by the bees would be more or less damaged by mold and fermentation. Light colonies were especially exposed, and the first to suffer. All unsealed stores, especially the pollen, would be affected.

I regard the wintering of the stores in good condition as decidedly important; for upon their condition depends the future prosperity of the colony. There is no question about their wintering best in a dry place. I found these cellars too cold. They were affected too much by outside temperature—a fault I had no means of correcting, as I had no means of raising the temperature during a long steady cold spell, and this I think is the prevailing fault of such repositories. They were by no means cold cellars, as they were frost-proof, and sufficiently warm for vegetables, but they were cold bee-repositories. If such a cellar has to be used it is best to put in as many colonies as can be safely controlled during the warm weather in early spring before it is time to set them out, for they help to keep up the temperature during a cold spell. If these cellars had been as dry as my home bee-house, the low temperature would not have been at all serious; or with artificial heat the fault might have been easily corrected. Look out for cold if the wintering repository is damp.

WHAT MAKES THE MOISTURE IN THE BEE-CELLAR?

The walls are cold. The bees generate heat, which warms the air about them. This moves out to the walls and cold corners, and deposits the moisture with which it is loaded, by condensation, where it will remain if there are no means of absorbing it or evaporating it by ven-

tilation. Of course, so long as the bees keep up the proper balance of heat, no moisture can be condensed upon the hives or combs; but upon this balance hinges life or death to the bees.

Cold and moisture are destructive to the bees when they meet as allies; but so long as they do not come together they are comparatively safe. Bees will endure severe cold if dry. They will also withstand much moisture in a high temperature.

If you decide that you want to make your bee-house so that it will be dry, make the walls of material that will absorb moisture instead of condensing it. Imitate the chaff hive. I would suggest, as an improvement to walled repositories that condense moisture, an inside lining of matched ceiling, with an air-space between it and the wall. This would prevent the condensing of the moisture without interfering with the requirements necessary for wintering. I am quite sure that this would improve the sanitary condition of such damp repositories.

A great many bee-keepers are situated in a level country where they could not build like Mr. D., by burrowing into the side of a hill, if they wished to; but they must build wholly above ground. This requires an entirely different structure—one with double walls packed with some kind of absorbing material like sawdust, or with dead-air spaces.

Then I would say, as regards the conditions desirable, according to my experience in a bee-repository, I would have it frost-proof and dry; dark when required. That it is necessary to have a bee-repository always shut up from the light is a very great error. If other conditions are favorable, the light does not disturb the bees in the least. When they are inclined to fly out of the hive at a low temperature it is an indication that something is wrong. With a high temperature toward spring it is then necessary that the bee-room be dark; but the fore part of the winter it is not important. I leave my bee-house doors open after the bees are put in until the weather is quite cold. The bees remain quiet.

A valuable feature in a bee-house is an extra room adjoining the bee-repository, which may be used as an air-chamber to furnish air to regulate the temperature to some extent. It is the sub-earth theory realized. If the bee-room is small and well filled it will be kept warm by the bees during the coldest part of the winter; and as the temperature rises in the bee-room at the approach of warm weather or during a warm spell, more room can be given by opening into this room as required. In this room I would also have a stove to furnish artificial heat. After years of experience I would not think of building a bee-house without providing the means of using artificial heat when needed. There are times when an hour spent

in warming up the bees just a few degrees would improve their condition materially.

I have been delaying this article a few days in order that I might read it over again to see how it would sound after I had set out my bees. I have to-day, April 5, set out from my home bee-house, 178 colonies without the loss of one from any cause; although quite a number were small and light in the fall, they all, so far as I can see, are in as perfect condition as when they were set in last November. They seemed to start in right where they left off last fall. It is not enough that bees come through the winter alive. They may do so, and yet come far short of being well wintered.

East Townsend, O., Apr. 5.

[A few days ago we received a card from Dr. Miller, calling our attention to a few paragraphs in Gravenhorst's journal, *Deutsche Illustrierte Bienenzeitung*, and advising us to translate and print them. Fortunately, as it turned out, we had no particular use for them till the reception of the article above, from Mr. Boardman; and now, like "the stone which the builders refused," it has a marked bearing on the question, with a decided inclination in the direction of Borodino, N. Y. Mr. Schönfeld is held in the highest esteem by the best bee-men of Germany (or Europe for that matter), and his indorsement of Mr. Czeselski's views seems to be very enthusiastic. We give it here for what it is worth; and we have no doubt the experiments were performed with that great care which is characteristic of the Germans.—W. P. R.]

Mr. Czeselski says:

Bees use water in winter. They get this water from uncapped honey, which absorbs it from the surrounding moist air. There is always found, in winter, in the upper part of a bee-cluster, a greater or less number of uncapped honey-cells, as the bees always uncap them in advance, without consuming the contents. These uncapped cells are designed to absorb atmospheric moisture. The more favorable the circumstances may be for the honey to absorb moisture, the smaller will be the number of cells uncapped. In clumps of bees, and in their immediate vicinity, where a temperature of only from 52 to 54 F. prevails, brood-rearing can not go on. The air which is breathed out by the bees, which is already somewhat moist, receives in addition, by the condensation of the moisture in the cold outer air, a considerable amount of wetness. Now if, while condensed, it comes in contact with an absorbent body, it is clear that the latter will take from the former a certain amount of moisture, or even make it so dry that, when it impinges against the cold walls of the hive, it can give off but little more dampness. A colony under such conditions will winter well. Still, if the brood-nest is too small, and crowded with bees, and the entrance not broad and high enough, or if the colony stands in a warm place, the temperature will rise, and hence the honey can not absorb water enough from the expired saturated air to meet the requirements of the bees. They will suffer from thirst, and winter badly. If the air contains too little moisture, the honey itself loses a part of its own. It happens in summer that the bees try by fanning to introduce large amounts of dry air into their hives, in order to ripen the green honey."

[Mr. Schönfeld continues:]

That is a beautiful and intelligible view of bee-life, which will be hailed with joy. It is the fruit of a searching and comprehensive investigation into the economy of the hive, as well as a clear insight into physical laws bearing on the case, and an exact and scientific examination, which the doctor has given us. From the most careful experiments,

we learn: Three grains of uncapped honey will, in 24 hours, in a temperature of 76°, absorb only .584 grains of water on an average; while three grains of the same honey, impregnated with the same quantity of water, but which, during the experiment, has cooled down to 56°, will, in the same space of time, absorb 1.527 grains of water. Other experiments showed that the three grains of honey, in 24 hours, at a temperature of 76°, took up, on an average, 1.032 grains of water, and at 50° absorbed 2.7 grains, and in one case even 3.034 grains. In the dry air of a room, on the other hand, having a temperature of 61°, three grains of honey lost only .04 of a grain of water. In three experiments, made directly in a cluster of bees, at a constant temperature of 50°, five grains of honey received on an average 3.068 grains of water. No experienced observer or student of the universal laws of nature can doubt the results of these experiments. We find it perfectly easy to comprehend that ripe honey, containing only 20 per cent of water, which the bees bring in as nectar containing 80 per cent, does, by means of energetic fanning, lose 60 per cent of its moisture; and that it attracts back to itself its lost property, water, as soon as the bees uncapped the cells. It is the nature of honey, when five grains of it contain only one part of water to five of solid part, to absorb, on an average, 3.068 grains of water; for it will not take back more water than it originally held as nectar, as nectar is four-fifths water.

[As our readers know, I have visited Mr. Boardman's home a number of times, and illustrated and described his favorite winter repository at his home apiary a few years ago. As it may not be convenient to refer to this I reproduce one of the engravings we then made.



It shows the outside of the repository. It is a plain double-walled building, divided off into three rooms—two large rooms, one at each end, and one smaller one for entryway in the center. The whole structure is 12x50 feet, with walls 14 inches thick, and packed.

R. L. Taylor's experiments last winter, as reported in our last issue, seem to show that moisture, or even an excessive amount of moisture, does not have a deleterious effect on the wintering of bees; but Mr. Taylor seemed to regard as of prime importance an even temperature, and Doolittle seemed to be of the same opinion. Observe that Mr. Boardman thinks a dry repository important, but does not consider the matter of exact regulation of temperature necessary. If I am correct, Mr. Boardman winters right along, year after year, in this repository, with absolutely no loss. If the proof of the pudding is in the eating, then Mr. B. seems to be nearer the truth. Or perhaps we can put it this way: If the cellar is moist, we must have an even temperature; if it is an up-ground repository, and dry, even temperature is not necessary. This will harmonize the opin-

ions of Doolittle, Taylor, and Schönfeld, on the one side, and Boardman on the other.

With regard to artificial heat at certain times in winter repositories, Dr. Miller has seemed to stand almost alone in its advocacy. But now comes Boardman supporting it, and, for aught I know, he may have been a practitioner of the idea as long as or longer than Dr. Miller.—Ed.]

B. TAYLOR'S LATEST HIVE

LARGE HIVES HAVE TOO MUCH ROOM BELOW, AND CONSEQUENTLY LESS SURPLUS; THE FORCE OF DADANT'S ARGUMENT FOR LARGE HIVES LOST, AND WHY.

By B. Taylor.

Editor Gleanings:—I see you still wish beekeepers to give their ideas in regard to small or large hives. I have tested more styles and sizes of hives in my 45 years of apiarian experience than any other bee-keeper I know of. To me it is a great pleasure to realize that I know a thing in counter-distinction to merely believing it, for belief may be founded on either truth or error, and we must not forget that error is no less harmful because honestly entertained. "Prove all things, hold fast to that which is good."

Many years ago I made four large hives that contained 4000 cubic inches each. I expected to get large yields of comb honey from them. I reasoned that, by clover time, these large hives would contain gigantic colonies of bees, and would not be likely to swarm. Well, I believe they never did swarm during the three or four seasons I used them; but the giant swarms were never ready at the right time when the white-honey harvest came. Each season these big hives would contain no more bees than hives of 1200 inches of comb capacity, and I never got any surplus from them worth mentioning, and what they did give was always dark fall honey. You see, they had ample room in those big brood-chambers, to store all the white honey they did not use in raising the great colonies of bees that those hives always contained at the end of the season. This immense force would, before spring, consume nearly all of the large store of honey which those hives always contained at the commencement of winter; but these old bees would pretty much all be dead the following spring before a new force of young bees could be raised to take the field; and they would have to build up again from about the same condition as swarms in small hives, with this disadvantage—that the large hives did not utilize the heat of the colony nearly as well as the smaller ones in the cool weather of spring.

A year or two ago we resolved to discontinue further general experiments in testing hives. We resolved to select from the fruits of our experiments that hive and system that actual experience had taught us would give the very best results in white surplus honey, either comb

or extracted, with the least amount of work, and be good at the same time for wintering and breeding up colonies in the spring. And now, friend Root, to describe just how these hives are constructed, and the reasons for them, and the system of using them, will give a clearer explanation of my present understanding of the *best* hive than any other words could give.

The new hives are 16 inches square, outside measure; $14\frac{1}{4}$ inside, and the bodies are 9 in. deep. The frames are $13\frac{1}{2}$ long by $8\frac{3}{4}$ deep. Each frame contains 100 inches of comb surface, and we use 10 of them in a hive. Those hives then contain 1000 cubic inches of comb surface. This is, then, according to the common popular understanding, a small hive. And now for the system of using them. We will hive new swarms in one of those hives on eight combs, two dummies being used in place of the outside combs. Each hive will be given all supers of sections filled with either finished combs or foundation, or part of each that they can use. At the end of the white-honey season (basswood here) we will remove the surplus cases, take out the two dummies, return the combs, place a queen-excluding honey-board on top, and on this another hive, either a new one filled with foundation or one filled with bees and brood from which a swarm has previously issued. If the last is used I will see that the queen from the new swarm is removed, and the old swarm with its young queen put under. I want no brood raised further in the top hive. As the brood in the top hive hatches, the combs will be filled with fall honey. If the flow should be good I will add other hives as needed until the end of the season. At the end of the honey season I will take off all hives above the queen-excluder, having, a day or two previously, put an escape-board under them and run all the bees into the parent hive below, which hive will be examined as to stores, and, if lacking, an abundance will be given from the filled combs from the top hives taken away. We will winter the colony in a single hive. They are easier to handle, take less room in the cellar, and we *know* that, with us, a small hive with a good colony of young bees, and plenty of stores, is in the best possible condition for cellar wintering.

In the spring we will remove the colonies to the summer stands. These stands will have room for two colonies each, but we will have only one colony to the stand until swarming-time; but previously we shall have added to each colony a second hive taken from those used on top last fall, and more or less filled with honey; but we shall not add the second hive until the first one is well filled with brood, as they will breed up much better in the small single hive early in the cool weather of spring.

In this system each colony will have two hives at swarming-time. We will give each

colony, run for comb honey, cases of sections early, for we do not care whether they swarm early or late. We will keep them storing surplus without swarming at all, as long as plenty of room will do it; but we will use no *force* measures to prevent swarming; for, after the most searching effort in that direction, we are now thoroughly *convinced* that it can not be *profitably* done. When the swarm does finally come (if it does), we will hive it in a hive contracted to eight frames or less; remove all surplus cases from the old to the new swarm; set it on the old stand, turn the entrance of the parent colony in an opposite direction on the vacant space on the same stand to be relinquished, and the two colonies will be united again after the white honey-flow as before.

In working for extracted we will simply give each colony all the hives they will fill; and in case they swarm we will treat them exactly as for comb honey. If, after we have supplied all our colonies, fall and spring, with all the combs of honey they can use, if any remain we will extract them; but we will use every pound of dark for winter stores and brood-raising; for by this management we can and will secure nearly the entire white-honey crop for surplus.

Now, Mr. Editor, I have written not only about small hives but how to use them. Many bee-keepers try small hives. They use them exactly as they would large ones. They do not find small hives profitable, and argue against them. I have great respect for the Dadants as bee-keepers, and their argument for large hives had almost persuaded me; but now comes Mr. Dadant, in the *American Bee Journal* of May 9, and states that his average yield of extracted honey from colonies in his big hives is *only fifty pounds*, and that his greatest yield was only 150 lbs. per colony. Friend Dadant, you have, to me at least, given the whole argument for your large combs and brood-chambers away. A small comb, all will agree, can be handled more easily and pleasantly than large ones, and small hives the same. You may say I have more combs to handle in my two sets that I use at times; but I tell you that, with my wired end-frame, with which no followers, wedges, thumb screws, or other traps are used, but where each comb can be taken from any part of the brood-chamber with the naked fingers, and returned to their exact place without the use of our eyes at all, the handling of frames becomes a pleasure and pastime. As for crops, we have always worked for comb honey, and have for 20 years regarded less than 100 lbs. per colony, spring count, as partial failure. We have in a good year secured 143 lbs. per colony from a whole apiary, and 90 per cent of it white honey. The seasons of 1893 and 1894 were regarded as bad ones here, and yet we harvested more fine comb honey each of those seasons than Mr. Dadant says he gets in extracted in average good years. No, friend

Dadant, you may go ahead with your big hives. I now *refuse* to be "persuaded."

Now, friend Root, in praising my own special hive I do not mean to condemn other small hives (or large ones either). I have no doubt your eight-frame Dovetailed hive can be used in the system I practice, and have explained in this article, to good advantage.

Forestville, Minn., May 17.

TWO EIGHT FRAMES, ONE TOP OF THE OTHER,
NOT AS GOOD AS THE JUMBO HIVE.

Editor Gleanings:—You ask friend Nash, on p. 349, if he ever tried two eight-frames, one on top of the other. I will say that I have tried them, also the ten-frame two and three stories high, and they do not give as good results. Why? Because there isn't sufficient cap room. You can get strong colonies in the eight or ten frame two stories, but they are not in convenient form for sections. You see, when you have the sixteen frames in one hive you can put on 48 sections, and the hive is not yet as tall as it is wide or long; you can put on another tier of 48 sections, and it is not yet as high as it is wide or long. All bee-men acknowledge that the proper form of a hive is square, as nearly as may be. When the third tier of sections is added it is then nearly square.

How do you suppose the eight-frame two-story hive would appear with this number of sections on? Rather out of proportion, I think; don't you?

I find that I can conform to the principles of honey-production, as laid down by Heddon or Honey Producer, better with my Jumbo hive than with any other hive I have used, except his third principle, which cuts no figure in this management, as the bees seem to fill the outside sections just as well in the sixteen-frame as in the eight-frame hive.

I was extracting from the Jumbo hive May 2d. One of them contained seven frames of sealed brood. May 4 I transferred some from ten-frame hives into the Jumbos; three and four frames of brood was all they had, and they were packed in chaff, sides and top. All the protection the Jumbo hives had was the upper story filled with chaff. The eight-frame hives are none of them ready to transfer yet.

Raspberry will soon be in bloom. The bees wintered in the Jumbo hive will be in fine shape to store it while the eights and tens will be building up. N. E. DOANE.

Breckenridge, Mich.

Friend Root:—I have watched with great interest the discussion relating to large and small hives, and trust the same will be continued until all the light possible has been thrown on the subject. There are a few individual bee-keepers in this country who think they know it all; but they are a disagreeable class of men to deal

with. The great mass of your readers do not belong to that class, but are willing and anxious to learn while they live. If my apiary were situated at a distance from the river-bottoms, where I could not have early and late pollen and honey, I think it would be an advantage to me to use the ten-frame hive in preference to the eight-frame. If I ever increase my bee-business I think I will try fifty ten-frame hives, and institute some comparisons; then if I decide that I do not want them I can sell them to some fellow on the other side of the fence, or send them to Richland Co., Wis., to be used for *Hatch*-ing purposes.

The strongest colony now in my apiary was wintered out of doors on two hive-bodies of 8 L. frames, each packed in planer-shavings. On the 3d of May I noticed about one peck of bees hanging out at the entrance. I examined them and found much brood in both stories, and queen-cells started preparatory to swarming. I gave them a third set of frames, which they at once occupied, and now (May 13th) I find the preparations for swarming have disappeared; and truly there is no occasion for it, as there is but little prospect here for a honey crop before basswood.

But here is the point I wish to make: If the experience of the past winter holds good, there are other colonies in the yard that would now be considered rather weak, but at the close of the season's work I shall find that their honey-record is as good as or better than that of the other. If a queen produces a large amount of brood very early in the season, and the honey season is long, as it usually is here, she will be very likely to do less during the middle or latter part of the season than some queens that do not get down to business in egg-laying so early.

Browntown, Wis.

HARRY LATHROP.

FOUL-BROOD LAW IN WISCONSIN

INDEFINITELY POSTPONED; AN APPEAL TO THE
BEE-KEEPERS OF THAT STATE.

By N. E. France.

I am surprised that the bee-keepers are so indifferent to one of the vital points in bee culture. Often have I called upon bee-keepers of our State, and explained to them the nature of foul brood, contagious and fatal; and unless something is done to stop the spread, the future outlook for Wisconsin as one of the best honey States is very alarming. Many times I have been asked, "How near is foul brood to their bees?"—as if a few miles insured their safety! With the present demand for queens and honey, I have plenty of cases reported where foul brood has appeared from some supplies bought 2000 miles away. We have never had a case of foul brood, and don't want to. I have spoken on this subject in conventions in many towns of Southwest Wisconsin. Last November, at Montfort, the Southwestern Wisconsin Bee-

keepers' Convention voted their president be delegated to draft a bill for the suppression of foul brood in Wisconsin, and attend the State convention in February, and get them to assist in having the legislature act on the bill. I appeared before said society, which voted F. Wilcox, their president, to act as State delegate. We in committee carefully reviewed each section of the bill, and reported what we considered a model, much in form like the Canada foul-brood law, which is doing so much good. That evening my assemblyman reported Bill 300 A. for consideration, which was referred to the Committee on Agriculture. About two weeks later I was telegraphed to appear before said committee in defense of the bill. I took the next morning train, and at 1:30 P.M. appeared as directed. Said committee reported the bill was worthy of consideration; but as it provided for an appropriation to defray expenses of a State Inspector, they would recommend the bill for indefinite postponement. As soon as this report reached me, I learned by several assemblymen, that, if the bee-keepers would write them, urging the passage of the bill, it would have quite an effect. I wrote 65 postal-card requests to bee-men, asking them to plead for their interests. Had they all responded with the earnestness of F. Wilcox, H. Lathrop, and F. Murray, Wisconsin would have had a foul-brood law.

I set a date for them to reply. The same date I again appeared before another State claim committee, with only a small handful of letters for support. As a last resort I presented this committee a bill the same as before, except that no State money was asked, but a two-cent-per-swarm tax on all colonies of bees, to defray expenses, was added. As this made the bill self-supporting, they voted to recommend its passage. Next day it was presented to the Senate, and returned for indefinite postponement.

Now, Wisconsin brothers in bee culture, I have been at \$25.00 personal expense, and wish to say that, if you had done your part, we should have had a law for our defense. Am I going to give it up? Not until we have a State foul-brood law. I know the ground we have to go over, and will for the next two years try to get our bee-keepers interested. If at first you don't succeed, try, try again.

Platteville, Wis., May 6.

BEFORE THE WESTERN CLASSIFICATION COMMITTEE.

FREIGHT RATES ON EXTRACTED HONEY IN BULK MATERIALLY REDUCED.

By Herman F. Moore.

Mr. Root :— Dr. C. C. Miller has just left my office with Mr. Geo. W. York, and will stay one night at Ravenswood with him. The doctor stayed at my home last night. He says he has

often been asked to pronounce a benediction, but answered that he was not a minister. But I tell you it is a benediction to have Dr. M. for a guest; and if he did not preach to us— why, I never heard preaching. Mrs. Moore and myself were charmed by the doctor's visit. He sang for us in his own inimitable style, and played an accompaniment on the piano.

We had 45 minutes before the full committee. It consisted of about sixty men of all ages, from the youth of 25 years to the gray-headed veteran railroader, seated at a long table in a room 75 feet in length.

Dr. Miller called attention to the fact that the bee-business is a great and growing industry; that it needs encouragement from the railroads to develop into one of the greatest interests in the land. He said, by way of parenthesis, that he was there in the interest of the roads; that if they'd give us lower rates we'd give them more business. He mentioned the fact that one supply-firm had shipped seven carloads to western points in one month (The A. I. Root Co.); also that fourteen carloads of honey was shipped from Arizona in 1894 to one firm in Chicago (R. A. Burnett & Co.).

Nine petitions were presented to the Western Classification Committee by the chairman of the committee appointed by the North American Bee-keepers' Association at its convention at St. Joseph (Dr. C. C. Miller, of Marengo, Ill.). Petitions on four of these same articles were presented by The A. I. Root Co., of Medina, O.

Bee-hives in the flat was first on the list. Through the kindness of T. G. Newman, sample packages of stuff were on hand to show the committee. Mr. York, editor and publisher of the *American Bee Journal*, assisted the writer in elevating the samples in view of the committee. Attention was called to the fact that bee-hives in the flat (K. D.) have no greater value than average lumber shipments, and that the Trans-continental Committee had already rated them with box stuff at a very low rate.

Samples of the Crane and Clark smokers were next shown to the committee. They took great interest in these, and one or two amused themselves in a quiet way by aiming the current of air at a fellow-committeeman's face.

Samples of honey-box lumber were then presented, and the uses explained. Just then a young man asked how long a bee lives, to the great amusement of the others. Dr. Miller said it depended on what kind of a bee he meant. Another committeeman put in, "A bumble-bee," and the whole committee of railroad-men burst out laughing, like a lot of schoolboys.

The writer believes that whatever reduction is obtained will be more the result of Dr. Miller's jokes, and R. A. Burnett's case of honey, which he presented to the committee, not for publication, but merely as an evidence of good faith, than to any of the solid arguments advanced in the course of the conference.

In answer to the question, Dr. Miller said that ages vary greatly, and explained the matter at length as bee-keepers understand it.

Then said Dr. Miller, "I am going to tell the biggest whopper yet. Our queens lay as high as three thousand eggs in a single day;" and some gentleman remarked, "That is the reason the bees live so short a time."

The honey-extractor crated was then exhibited, upright and lying on its side, so as to give the committee a good idea of the structure of the same. The committee was asked to classify these, as there is at present no classification of them in the Western.

Honey in comb being the next petition, a section of comb honey was handed about, and the gentlemen began to sample it with their fingers.

Dr. Miller explained at length to the committee that we as bee-keepers want the glass in sight; that we have no fear of breaking the glass, but the honey inside, owing to ignorance of the nature of the contents. A large crate to hold a dozen 12-lb. cases was shown, and our method of packing the same explained. We hope to get a second-class rating for comb honey packed in this manner. There is no doubt that this is the ideal way to pack comb honey for shipment in less than carloads. The writer received one shipment of over 1000 lbs., without any breaking, the past season.

Friend York kindly furnished a Muth jar of fine extracted honey, which was passed around, and the gentlemen invited to partake of the same. R. A. Burnett suggested that it was not to use on the hair.

A good point Dr. Miller made was that the railway companies, in rating extracted honey, valued it equal to comb honey, when, as a matter of fact, the average extracted honey has about the same value as good syrup, and no greater risk in handling. The doctor explained why this is so.

The chairman of the railway company asked the value of comb honey. He also asked the value of beeswax and of comb foundation.

One reason why the companies rate these things high is, that they look at the value compared with the bulk and weight. Four things they consider in classing our products—weight, value, bulk, and risk of injury in shipping, to the goods shipped, or to the other goods in the same car.

Another point against the high rating of honey is the fact that all shipments are actually at owner's risk of leakage or breakage, as an owner collecting for loss by transportation is almost unheard of.

In regard to beeswax, we informed the committee that, by high rates, they prevent much wax from being shipped and comb foundation returned—a double shipment and double transportation charges for the roads.

Bees in hives less than carloads are refused by the roads at present. Dr. Miller told them that,

under such circumstances, a bee-keeper desiring new stock pays Uncle Sam two cents to carry a queen-bee by mail, when often full colonies would be shipped if taken at a reasonable rate in less than carloads.

The railroad committee on classification rendered great courtesy and lots of interest in all the remarks made by the committee of bee-keepers. Too much credit can not be given these gentlemen for the kind manner in which they treated the committee.

Naturally your committee felt some timidity in appearing before these railroad magnates who hold, as it were, the destiny of half a continent in their hands. One of our number said we might be in the predicament of the gentleman who went to the general passenger agent to get a pass. After the applicant had told his story, the G. P. A. remarked with a drawl, "Well, yes; I can give you a pass or I can give you the money to buy a ticket."

We shall be on the anxious-seat for a few days until the rulings of the committee on our petitions are made known."

In the meantime a step in advance has been taken. We have published the fact that we are alive, and doing business at the old stand. This committee, and through them the railroads they represent, will in the future have more respect for our honorable pursuit. Our claims for damages will receive more respectful attention, and good must result to the craft at large from this meeting.

Later.—I have just seen Mr. J. T. Ripley, the chairman of the Western Classification Committee, and he informed me as to the result of our petitions as follows:

Bee-hives in flat—petition denied.

Honey-box lumber, referred to the Western Freight Association, John W. Midgley, chairman, 7th floor, Rookery.

Bee-smokers—petition denied.

Honey or wax extractors, crated or boxed—petition denied.

Honey in comb, glass fully protected—petition denied.

Glass fronts not protected, future rating first class.

Extracted honey in barrels, kegs, or tin cans boxed, future rating fourth class.

Beeswax—petition denied.

Comb foundation—petition denied.

Bees in hives—petition denied.

In regard to bee-hives "K. D.," which should have been referred, to be consistent, along with "honey-box lumber" to the Western Freight Association, the writer was informed by Mr. Ripley, the chairman, that he might get "bee-hives K. D." referred also.

Mr. Ripley very kindly accompanied the writer to a number of railroad freight offices, for this purpose.

The next meeting of the Western Freight Association occurs in May, and it is too late now

to get on the docket the petitions referred to. The next meeting after May will occur in June, if I am correct, and then our petitions will be taken up. It will be best to get our material in shape to present to them in the best possible manner as they make the final ruling.

Chicago, Ill.

FEEDING.

THE OLD STYLE OF MILLER FEEDER PREFERRED, AND WHY.

By Emma Wilson.

The first thing we did after taking the bees out of the cellar this spring was to weigh each hive; and any colony that weighed less than 38 lbs. was given a frame of honey. As soon as the bees were hauled to the out-apiaries, we commenced putting on feeders. Into each feeder we put 5 lbs. of dry granulated sugar. Then we made a little hollow, right in the center of the sugar, and poured in about a pint of water, and so on till all the feeders were treated alike. After they had stood half an hour or longer, we added three quarts of water to each feeder.

The object of putting the small amount of one pint of water into each feeder at first was to let the sugar have time to dissolve, so that the first that passed through might be sweet. If the whole amount of water is put in at one time it will pass through so rapidly that it will be very little sweetened, and the bees will not take it readily. It pays to look after all these little items, even if it takes a little more time.

When the Miller feeder was improved upon, Dr. Miller was very much pleased with the improvement, and we made 25 of the new kind, intending to discard the old ones. But after a thorough trial we liked the old ones a good deal better. In the first place, if there's any leakage it is inside the hive, and that is quite a point. It is more convenient to have one large compartment rather than two smaller ones. The one point that we thought would be of so much value, and prove so much superior to the old one, that of the passageway directly over the brood-nest instead of at the sides, in actual practice has not proven to be so. Just why, I can not tell. It really seems as if it ought to be; but our old feeders are the ones that are emptied first, and, as a consequence, the new feeders are the ones that we use last.

Many of our feeders have been on for more than three weeks, with only 5 lbs. of sugar in them, and are not empty yet at the present date, May 4. The very strong colonies do pretty good work at emptying, while those of medium strength empty very slowly, and the weak ones are almost a total failure. Last fall our feeders, with 15 lbs. of sugar, were often emptied in a day or two, while this spring the strongest colonies are several days in taking 5 lbs. Fall and spring feeding are two entirely different

things. Of course, we should expect the strong colonies of fall to work faster than the weaker colonies of spring; but there seems to be more difference than can be accounted for in that way. Perhaps it may be accounted for in this way: In the spring there is so much brood to care for in proportion to the number of bees that few bees can be spared for the feeder, while in the fall there is little or no brood.

I notice that, where there was a leakage from the new feeders on the outside, the bees took the feed eagerly, seemingly more willing to work outside than inside the hive; and, strange to say, the bees work along busily day after day on this leakage without any indications of robbing.

We had, however, two colonies robbed this spring, not where there was any leakage, but the robbers went in at the entrance, which was not large, up through the hive, and emptied the feeder, and left no honey in the combs. The curious thing about it was they did not destroy the colony.

All things considered, never a feeder would we put on in the spring if we had only enough frames of honey to feed with. We planned for this last spring; but when the season is a total failure, and the bees can not gather enough to keep them over winter, where are the frames of honey for spring feeding to come from? Might it not have been a good thing if we had had the bees fill some extra combs of sugar syrup last fall?

Marengo, Ill., May 4.

REMARKABLE RIFLE-SHOOTING.

Yes, Buckskin Charley beats my record on deer-shooting; but I think he had greatly the advantage over me, as his record was made at a time when game was very plentiful, and not wild. Although he used a rifle he "still hunted," which allowed him every advantage, while here at this late day deer are so scarce a man could walk for a week, and it would be an accident if he ever saw one. Deer are now found only in the wooded districts of East Texas, and we use hounds to find them; so we hunt on horseback, and run for a chance to shoot. I have killed many a deer while my horse was running at full speed, as well as the deer. This makes hard shooting—quite a difference from being on foot. A few years back I was quite handy with a rifle. I used a 22-caliber Winchester rifle, but my shooting was confined to target practice—at flying targets too. The best score I ever made, I broke 38 balls thrown by hand into the air, out of 40 shots. I have cracked walnuts, peachstones, and pecans, thrown into the air—yes, nickels and dimes. This requires very accurate shooting, as a 22 ball is very small.

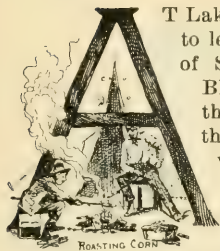
J. D. GIVENS.

Lisbon, Texas.

RAMBLE 133.

IN THE MENDOCINO MOUNTAINS.

By Rambler.



At Lakeport we were advised to leave the county by way of Scott's Valley and the Blue Lakes. We accepted the advice, and through the valley we go. Here we find again a general farming community. Many hop-fields abound; and as it was nearing the time of gathering, a large band of Indians had arrived from some not remote reservation, and were camped on the sandy shore of the river, and their camp made a lively and picturesque scene.

Blue Lakes were rightly named. The waters are clear, and of a bluish cast. Three little

in Mendocino Co., there was a fine running stream full of fish; rabbits in the brush, quail in the grass, and deer on the mountain; and from thence it was hurrah for the game. It was after dark when we found a good camping-place; but darkness had to flee when Bro. Pryal started a camp-fire. Old floodwood was piled up all along the stream; and, what a roaring camp-fire we enjoyed! Plans were laid for the morrow, and we could already see fish and game piled up all around our camp.

Before the gray of dawn appeared, Wilder was off with his rifle in quest of deer. Pryal and I fished. After about two hours angling I caught one 4-oz. trout; returned to camp; dressed, cooked, and ate my fish. In about an hour Pryal returned with one little fish and a long record of bites. His fish was also cooked and eaten, without much comment. I believe I suggested that we had forgotten to catch a fish for Wilder, whereupon Pryal thought we'd have to serve him with the bites.

Wilder soon appeared on the mesa beyond



MOUNTAINEERS.

lakes were linked together like a chain, and set like so many gems in the folds of the mountains. Bold bluffs, placid waters, mountains shading off into the smoky distance, gave us views pleasing to look upon.

Of course, Mr. Pryal had to clamber out on a log to fish. Result, some splendid—bites! We had set our minds to camp at the last of these lakes; but an honest-looking freighter we met told us that, a few miles further down, just over

our camp. Said I, "Wilder has shot a deer."

"What makes you think so?" said Pryal.

"Why, just see how he grinds his heels into the ground; and see how rapidly he walks."

So it proved. Susan B. was hitched to the cart, and away they trotted up the canyon. A fine buck, "mit horns so vide," was soon dangling to a limb in camp, and that day was devoted to eating venison, and jerking for future use the portion we could not eat.

The next day being Sunday, we all rested in camp. Our neighbor half a mile away had a fine herd of pigs that gave us some trouble; but Jack was equal to the occasion, and kept them at a safe distance. This neighbor said that it was no uncommon thing to find bee-trees in these woods; and, though he was not a bee-keeper, and no one kept bees near him, his observation enabled him to confirm the previous reports in relation to the great prevalence of honey-dew. At certain seasons the trees, shrubs, and grass were covered with it. Our experience with insects, however, was in the yellow-jacket line. These determined fellows were hungry for venison; and our slashed meat, as it hung in the sun to dry, began to disappear. We were told afterward by hunters, that, if unmolested, they would spoil and get away with a large amount of meat. We saved our meat, however, and consoled ourselves that, though there were many bees working on blossoms near by, they did not devour our meat. Half the ills that are laid to the honest bee might be cast upon the troublesome hornet.

After the two days' rest and such an abundance of venison, we made a lively gait to Ukiah, the county-seat of Mendocino Co. After a very brief halt we commenced a drive with Eur-ka, in Humboldt Co., as our objective point, or about 140 miles of mountain roads, streams, and forests. The towns began to dwindle in size, and the distance between them began to lengthen. The saloon seemed to be the main business center of these towns, and the saloon-keeper seemed to be a very public-

taking a nip. In Caliente the enterprising saloon-keeper, in addition to the watering-place, provided an awning, in the shade of which the team could rest while the driver



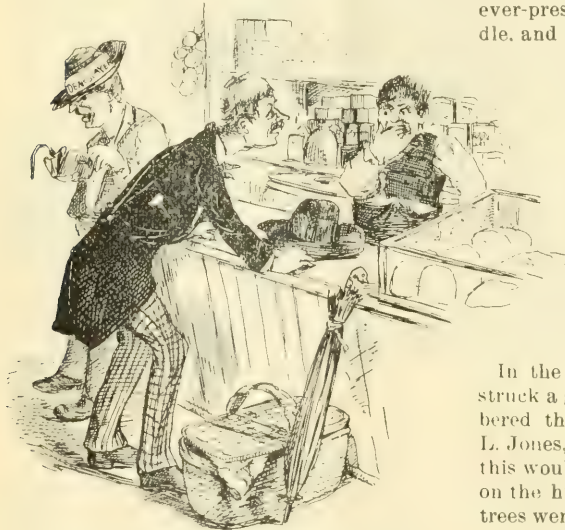
A CHANCE FOR PRACTICE NOT TO BE MISSED.

was taking another nip. We watered our horses, but eschewed the nips. Here we began to meet again those many-teamed wagons hauling immense loads of merchandise into the remote mountain regions; and the jangling bells, upon the leading horses, made merry chimes in the air. Our days were passed in climbing and descending grades—rough grades, serpentine grades, forest grades, and but a small mileage of level grades.

The native mountaineer men and women were usually mounted upon horse or mule, the ever-present rifle across the pommel of the saddle, and the long picket-rope coiled in a convenient place. If we desired information about the roads, the woman always did the talking. The man with her usually had his mouth full of "terbacker," and before he could unload and get his tongue into working order the woman had unloaded a whole grist of information. When we three bachelors saw such a company coming it was safe for us to bet that the woman was already wound up, and ready to go off like an alarm-clock.

In the northern borders of Mendocino Co. we struck a great hog country, and we all remembered the brilliant scheme of our friend Harry L. Jones, the gas-man. We made remarks that this would be just the country for him—swine on the hillsides and in the valleys. White-oak trees were plentiful here, and the hog fattened on the acorns. Cows that wander in the forests are often belled; but here the hog was belled as well. Such a one crossed our path, and the following inspiring scene occurred:

White o'er the mountain climbing,
We spied a pensive sow;



"BREAD! TWENTY-FIVE CENTS A LOAF?"

spirited man. The only watering-place for our horses in these little villages was in the shadow of the saloon; and while the horses were drinking, the driver was supposed to be in the saloon

Jack, our dog, espied her too,
 And then commenced the row.
 Upon her neck a bell was tied
 With heavy leathern thong;
 And how the bell did jingle, whingle,
 While she sped fast along.
 Dog and sow, with headlong leaps,
 Kicked up a blinding dust;
 She, intent upon her sty,
 She meant to reach or bust.
 It was no use for Wilder 'n' I
 To swing our arms and yell;
 In sad confusion, out of sight
 Went sow, dog, dust, yelps, grunts,
 And jangling bell.

In the northern portion of Mendocino Co. our surroundings began to change. We left the railroad away back in Ukiah, and the only route now to follow is the stage-road into Humboldt Co. About every 25 miles are located stations, and now and then a small town. The intervening space is an unbroken wilderness. The trees that had been familiar to us began to disappear, and the redwood, the northern fir, the madrone, and the beautiful California bay-tree, or laurel, were abundant. The latter is a rich honey-producer in its season of bloom.

Our roads, instead of following up one canyon and down another, now sought the highest ridge, and we followed its contour for several days. The highest point to which our road conducted us was at the Bell Springs ranch, about 4000 feet above sea-level. We had a splendid atmosphere which visibly affected our spirits for happy effects. Grand panoramas of mountain beyond mountain, away to the north; black volumes of smoke rising from forest-fires; now the scene shifts, and we plunge through a narrow wooded defile; now out upon a mere niche for a road upon the mountain-side. Here were evidences that the road had been taken out by a slide, and dumped into the gorge below. The road, now mended with logs, was liable to go out again during the rainy season. It was in this region that we could indulge, under the inspiration of Mr. Pryal, in those big camp-fires; two or three fair-sized logs, then smaller limbs, sent the flames and the sparks heavenward in a grand pyrotechnic display. Cornfields were not abundant; but when we did find one it had to pay tribute in roasting-ears; and here we were delighted to initiate our city friend into the beautiful rural practice of roasting and then eating the delicious green corn. With a rise in our spirits, etc., there was also a rise in the price of provisions. Bread, 25 cts. per loaf; hay, 25 cts. per sack. As we had to buy hay for long distances, it was necessary to load several sacks. Susan B. and the cart were loaded to their full capacity, and Mr. Pryal's attitude at such times was so striking that I greatly feared for his decorous bachelor appearance. Wilder took turns with him, however, in hugging the delusion. See sketch.

At Bell's Springs we were directed to a good

camping-place a few miles ahead, where there was plenty of water; but by some hook or crook the signs were not strong enough, and we missed it. We made a long drive in a vain endeavor to find water, and finally darkness compelled us to camp. Having a merciful feeling for our horses and dog, we broke camp almost before the gray of dawn appeared, and resolved to find water, even before we ate our breakfast. We were now in an abundant deer country; and as this was the hour for them to feed, our guns were loaded, and Wilder sat with rifle in hand, and expectant eye. His face would have a sort of lemonade-without-sugar appearance whenever Susan B.'s whinnies would reverberate through the forest; but in spite of the noise, when we made a sudden turn through a wooded gorge, hurrah! three deer—noble deer, with antlers long, and nimble feet, went bounding one after the other across the road and into the bushes. I brought the horses to a sudden stop, and crack! went the rifle. "Whoa, Reina! whoa, Keno!" The rifle went into the bushes with Wilder behind it. Soon another shot, and *we* had the deer. Pryal and Susan B. came up, and we all lugged the deer into the road and upon the cart, and again proceeded upon our journey. We could have shot every deer, but we wanted only one for our daily needs, and a shooting of more would be merely wanton sport. We soon found a residence and a spring, where lived our friend the blacksmith. We dressed our deer, watered our animals, cooked our breakfast, and, without further rest, prepared for the continuation of our journey.



HIVING SWARMS IN HIVES HAVING PART
 FRAMES WITH STARTERS AND PART FRAMES
 FILLED WITH COMBS OF BROOD,
 HONEY, AND POLLEN.

Question.—In hiving swarms on frames containing narrow starters, how would it work, by way of contracting the brood-chamber, so to speak, to put in two or three frames of honey, bee-bread, and sealed brood, placing such frames on the sides of the hive, instead of using division-boards? This would save the trouble of looking over the hives and taking out the division-boards later on, and give the bees a start at housekeeping.

Answer.—There are three things against such a mode of procedure, the first of which is, that the bees would be likely to fill those combs with honey as soon as the brood hatched out, thus giving the three combs solid with honey, instead of having that much honey in the sections, this thwarting the only purpose of contraction, which is to secure the first and best

quality of honey in the sections, and also to get the bees to work in the sections before they commence to store honey in the brood chamber to any extent.

Second, if the three combs had any great amount of sealed brood in them, so that the hatching of this brood materially strengthened the swarm, it would be very likely to result in swarming, or the issuing of "virgin swarms," as it is called, where a swarm of the present year casts a swarm. These virgin swarms always destroy the prospect of a good yield of section honey, for, as a rule, they are much more persistent in continued swarming to the end of the honey-flow than is an old colony. I have often had new swarms go to work with a will in a large number of sections, working till they were about two-thirds completed, and then, just as I was priding myself on having a large lot of beautiful honey from such a hive, had them swarm, and be so persistent in swarming that none of said sections would be completed, while the nice looks of the work they had begun would be spoiled through the long failure of its completion.

Third. But the greatest trouble with such a plan of working lies in the persistency of new swarms in building drone comb in the remaining part of the hive, where any part of it is supplied with any thing in the shape of frames filled with combs. Why this is so I never could fully understand; but an experience of more than 25 years along this line has proven to me that bees can not be depended upon to build worker comb during the first week after being hived, if there is any completed comb in the hive at the time of the hiving of a prime swarm. With second or third swarms, the case is different, as bees are more apt to build worker comb with a queen when she first commences to lay, and only unfertile queens accompany these latter swarms; and in this case the queen does not commence to lay till the bees are fully accustomed to their surroundings. But with an old or laying queen, she seems to adhere to the combs placed in the hive when the swarm is hived, going but very little on the new comb then building, the result of which is the building of store comb for honey, which is always of the drone size of cells. After the bees have built a frame or two of drone comb, and the queen recovers her normal egg-laying powers which she had before the swarm issued, then the bees will go on and build worker comb; but we have worker and drone comb all mixed through our frames, which is a condition an enterprising apiarist does not like, and one which, if allowed to remain, results in a diminished crop of honey each year. My advice to all is, use only starters in the frames in hiving swarms, or else fill all frames with foundation, or give all frames filled with combs. Frames filled with foundation mixed with those containing combs do much better than frames

having only starters when used with combs; but even this is objectionable, on account of the bees lengthening the cells of the combs given while they are working out the foundation, so that the combs are very thick when completed, while those on the foundation are correspondingly thin.

ITALIANIZING.

Question.—When is the best time to Italianize an apiary of 52 colonies without interfering with the honey flow, without buying queens for every hive? and when should the queen-cells be started for doing this?

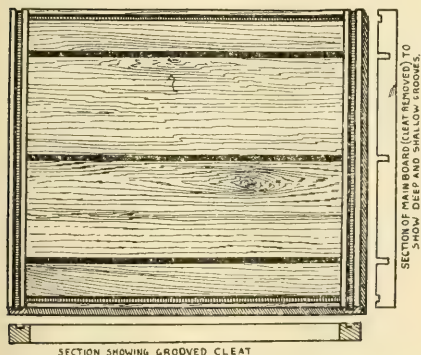
Answer.—There is no time of the year in which queens are so generally superseded as immediately after the general honey-flow; and we can always rest assured that, when the bees are willing to do such work, then is our best time. With me, fully three-fourths of all the queens which are superseded by the bees are so superseded during the three weeks immediately following the basswood bloom, as that gives our main honey-flow. Knowing this fact I have for years done the most of my requeening at this time of the year, and with success which has always pleased me, without interfering with my crop of honey in the least. To this end I start a greater number of queen-cells than usual, from five to eight days before the expected close of the basswood-honey harvest; and when these cells mature, hunt out the old queen and dispose of her, giving a mature cell 24 hours after having removed the old queen. If cell-protectors are used, the cell can be given at the time of removing the old queen, thus saving once opening of the hive; for, as a rule, the bees allow a queen to hatch all right where a cell-protector is used. If the young queen hatches in an hour or so after giving the cell, or before the bees become aware that their mother is gone, they will sometimes kill her and start cells from their own brood; but if the cells do not hatch in less than from 12 to 24 hours after the old queen was removed, nearly every queen will be accepted all right. A plan which I often use at such times is to raise a lot of cells from my best queen; and, 24 to 48 hours before they will mature, give one to each colony having a queen more than one year old, using a cell-protector for each one, and placing this cell in the sections or anywhere I best can where the bees can cluster about it, without hunting out the old queen at all; when, if the bees have any notion to supersede their queen, they will accept of this young queen and destroy the old one. If they destroy the young queen I allow the old one to remain, thinking that the bees know what is right; and, 19 cases out of 20, where the bees decide on keeping the old queen I find she proves par excellence till after the honey-flow of the next year is over. This is something that does not cost much labor, and one which I have practiced often to my satisfaction.



IMPROVED HIVE-COVERS.

By B. Taylor.

Editor Gleanings:—I have read so many articles in the bee-papers lately about hive-covers that I have concluded to send you a model of the best hive-cover in the world. You know everybody nowadays marks their wares "The best on earth," hence I make my extravagant claim in order to be in fashion. I have used this style of cover for more than 30 years, and believe it to be the best, all things considered, of any in use, past or present. Before I had machinery I grooved them with a common panel-plow, with a narrow bit. The grooving is, of course, to prevent warping, which it does most effectively. You know boards warp because one side becomes longer than the other, caused commonly by one side becoming damper than the other; then the damp side expands, and pushes the board in a circle; the grooves prevent this pushing power, as they allow room for expansion without its pushing effect. I always put the heart side of the lumber up, and groove two-thirds of the way through in three or more



places, according to the quality of the lumber, a soft board being less inclined to warp than a hard one. I always paint the ends of the covers in the joint before the cleats are nailed on. I cut the tops in lengths before planing; groove them, then nail on the cleats; the covers are then placed on a carriage, and run under a set of planer-knives, and the most beautiful covers you ever saw are made at the rate of one a minute, each one entirely out of wind, and true to a hair's breadth.

Of course, you will ask the reason for the shallow grooves near the edges. It is to prevent the water from flowing under by capillary attraction. I paint both sides of my cover—the under side one and the top two coats of oil and lead. I now have covers made thus thirty years ago, as straight and true as when new.

I have tried all kinds of costly covers of more than a dozen styles, and would have none of them as compared with these simple plain boards. They are always convenient in the yard or in winter quarters; they pack in small compass when not in use; are the cheapest of all to make, and will outlast any complicated cover of several pieces; shed water perfectly, if properly made, and deserve their title, "B. Taylor's Handy hive-cover."

Forestville, Minn., April 15.

[This question of grooving a cover-board to prevent warping has been brought up before. We never tried it in our yards.—Ed.]

THE DIVISIBLE BROOD-CHAMBER.

THE QUESTION OF INFRINGEMENT, AGAIN.

[I had hoped that this question might have been drawn to a close in our May 1st issue. But Mr. Williamson felt that, as he had been an unwilling participant in the discussion, and that, as he did not know his opinion, given on page 268, was to be used for print, he should be given space for further reply. After some correspondence with Mr. Danzenbaker it was granted, on condition that he would allow Mr. Heddon to have the "last say." The article came, and I assume that the condition was accepted. In order to have the whole matter appear in one issue, and to end there, I sent a proof to Mr. Heddon. Mr. Williamson's article is as follows:]

Editor of Gleanings:—It was with mingled feelings of amusement and disgust that I read Mr. Heddon's "Reply to Attorney Williamson," and it is probably foolish to dignify such "reply" by any notice whatever. In fact, were not Mr. Danzenbaker's interests involved in the matter I should pay no attention to it, since the intelligent reader will perceive that the alleged reply is not an answer to my statements respecting his right to hold the Danzenbaker hive to be an infringement of his patent, but, rather, a mixture of irrelevant citations from Walker on Patents, misstatements of the law of patents, and reflections upon my veracity.

It will be a sufficient answer to Mr. H.'s reference to "paid attorneys" to call attention to the fact that, however interested an attorney might be to present his client's case to the best advantage, his interest and consequent bias could hardly be as great as that of a party whose interests are at stake. It is to be remembered that Mr. Heddon is most vitally concerned in the matter in controversy, and that it is *barely* possible that, under the tremendous influence of interest (I understand he gets \$5 for individual rights), he is quite as apt to feel under compulsion to "say something" as would a "paid attorney." I think that, under the circumstances, my statements are fully as worthy of belief as those of Mr. Heddon.

Mr. Heddon says: "Allow me to call the reader's attention to the fact that Mr. Williamson makes no mention of patent law in equity." Permit me to call attention to the fact that the only reference he makes to "patent law in equity" is in his statement quoted above. He may know what he means by "patent law in equity," and its bearing upon his case; but so far as his article is concerned he keeps his knowledge strictly to himself. I rather suspect, however, that he uses this mysterious phrase as a sort of verbal bug-a-boo.

I am surprised, and yet at the same time flattered, that one so well versed in patent law as Mr. Heddon claims to be should admit himself insufficient to cope with me by asking that opportunity be given his attorney to reply to me. It would seem that the gentle reader will be justified in inferring from this admission of Mr. Heddon, that there is some force in what was said in my heretofore published opinion. I am also somewhat startled at the exhibition of inconsistency in Mr. Heddon in his expression of

an intention to fortify himself with the opinion of a "paid attorney," in view of the preceding and succeeding paragraphs of his article. Surely he will not insult the intelligence of the reader by offering the opinion of a paid attorney in support of his case!

Mr. Heddon charges me with misleading statements and mistakes, and not only fails to support his charges in a single instance, but in an effort to make out a case of error on my part he is himself guilty of what he imputes to me. He says, "If Mr. W. knew aught of the state of our art he never would have mentioned 'top covers.'" I challenge Mr. H. to point out the place where I used this expression. On the contrary, I used the phrase "top or cover," and as Mr. Heddon's patent specification uses this exact phrase, he will probably not insist that such phrase is an inappropriate one, and conclusive evidence that the user thereof is unacquainted with the nomenclature of the art. If Mr. H. could not read these three small words aright, it is little wonder that he falls into grievous error in endeavoring to understand and apply the principles of that branch of legal science which has been characterized as the "metaphysics of the law."

In stating in his fifth paragraph that the claim rejected by the Patent Office and dropped by his attorney is covered by the last eight words of his claim 5, "substantially as and for the purposes set forth," he displays gross ignorance of patent law, and shows that he has not read the "great authority Walker" as faithfully as one should, who assumes to instruct and criticise others in patent matters. This fifth claim of Heddon's patent contains a good deal more than the eight words referred to, and whether or not he can ignore or omit parts thereof to suit his fancy will be made apparent by the following extract from the "great authority Walker," section 549:

"A combination is an entirety. If one of its elements is omitted, the thing claimed disappears. Every part of the combination claimed is conclusively presumed to be material to the combination, and no evidence to the contrary is admissible in any case of alleged infringement."

If Mr. H.'s mode of construing claims by leaving out limitations to suit the exigencies of the case is sound, then, logically, he can cut out every thing but the words "a bee substantially as and for the purpose set forth," and thus be in a position to charge the bees themselves with infringement of his rights!

I also invite Mr. Heddon's attention to section 186 of Walker, which reads as follows: "It is well known that the terms of the claim in letters-patent are carefully scrutinized in the Patent Office. Over this part of the specification the chief contest generally arises. It defines what the Office, after a full examination of previous inventions and the state of the art, determines the applicant entitled to. The courts, therefore, should be careful not to enlarge by construction the claim which the Patent Office has admitted, and which the patentee has acquiesced in, beyond the fair interpretation of its terms."

C. J. WILLIAMSON.

Washington, D. C., May 8.

[Mr. Heddon replies as follows:]

INFRINGEMENT.

Editor Gleanings:—As a rejoinder to attorney Williamson's adjoining article, it may not be out of place for me to say that I have not and never have had any ill feeling toward the gentleman, nor is it casting any reflection upon his character, as he would make believe, to state that he, being a paid attorney, dealing with law rather than fact, uses fancy to carry the case of his client. Mr. Williamson must not forget that most bee-keepers have attended circuit court, and know that the spirit of legal work is to leave no kind of stone unturned to advance the interest of the client. I feel that I must compliment attorney Williamson upon his ingenuity in endeavoring to make a case without any material.

Does it not seem strange that my quotations from Walker should be called "irrelevant," and "mis-statements," by the learned attorney? I quoted them word for word; and if they are irrelevant, would not your readers know it, without the gentleman telling them? and if not, of what use is his bald assertion, without any explanation, in Mr. Danzenbaker's case?

Mr. W. thinks my interest is great because I sell

individual rights for \$5.00 each. Perhaps so. I have sold over 500 such rights, and perhaps a hundred counties at \$25.00 each; and after nine years Mr. Danzenbaker seems to have discovered the value of the products of my labor, and at once employed an attorney to see if there was not a flaw in my title by which he might jump my claim.

As to patent law in equity, attorney Williamson did say there was no such law; but now, having discovered his mistake, he seems to admit that there is. He says I do not explain of what use equity is to me. I will endeavor to explain: Equity will undo and set aside every citation from patent law that Mr. Williamson has brought up in all he has written. It will examine the state of the art ten years ago, and give to me all that is mine. In other words, if Mr. Danzenbaker, aided by his able attorney, should be able to find a weakness in the title to my property, equity, as the word indicates, at once comes to my protection. For positive proof of the foregoing, I refer you to Walker's text-book, edition of 1885, page 401. This shows that my former statement, denied by Mr. W., is absolutely correct, and that alone clinches my entire argument, because that court of equity in patent law, established in 1870, will give me what is mine; and I call the learned attorney's attention to the fact that the brightest and best-posted bee-keepers all over the country—men who know vastly more of the past and present state of the art than any patent-lawyer would know—pronounced my invention startlingly new, unique, and original. Talk all you may of the technicalities of my title, and yet bee-keepers know that the Danzenbaker hive is nothing more nor less than an infringement of my invention, and that, if he wants to use his sheet-tin rest, he should use it independently of my divisible brood-chamber, and frames closely fitting each other and the case. I am daily in receipt of letters from bee-keepers with whom Mr. Danzenbaker is corresponding, and in nearly all cases they send me his letters to them. These letters lay special stress upon the advantages of the special functions of my hive, but not one line have I yet seen concerning a single feature claimed in the Danzenbaker patent. I respect the Danzenbaker patent, although I consider it upon worthless devices; but, whether worthless or not, I should keep my hands off.

Attorney Williamson knows so little about our art that he misunderstood me regarding "top-covers." I had no reference to the way he used the words, but the significant fact that he said *any thing* about covers *at all*. Bee-keepers will understand me. Regarding his quotations from Walker, they are fully answered and annulled by those I previously quoted in this journal, and found in my circular to bee-keepers. But, laying this all aside, the patent court of equity, the existence of which Mr. Williamson undertook to deny, will set these all aside, and give to me what is mine. This, Mr. Williamson, can no longer deny. Nearly every well-read bee-keeper knows better than does Mr. Williamson, what belongs to me. The learned attorney excels the bee-keeper only in the matter of legal titles.

I hardly think that my opponent should be proud, and "feel flattered," because I admit that he knows more about the legality of patent deeds, and their fitness to the property they intend to cover, than should a bee-keeper who has made patent law only a side-issue study. However, when I received proof of his subjoined article I discovered at once that I needed no patent-attorney to wipe out his arguments as a July sun would melt a snowball. But let me again compliment Mr. Williamson by stating that he has no case, as he evidently knows, and that bee-keepers of intelligence are all against him and his client; knowing, first, that the Danzenbaker hive has no merit except as it incorporates my special features, and that, after so doing, his changes and additions nearly ruin the hive. But you may rest assured, Mr. Editor, it will not be long before this court of equity will be tried, and I will endeavor to substantiate every claim I have made.

Please allow me to refer to the Train, Terry, and Harris patents, as cited by you in a former issue. In these patents, as in all others, it is a divisible *hive* and not a divisible *brood-chamber*, for specified purposes, that is referred to. We have always used divisible *hives*, but not divisible brood-chambers, as specified in my patent. Mr. Danzenbaker said truly that father Langstroth was robbed, but that I had nothing to be robbed of. That is just what they said when they were robbing Langstroth. How perfectly history repeats itself!

JAMES HEDDON.

Dowagiac, Mich.



MRS. HARRISON'S RETURN.

Last autumn my attention was directed to the lateness of the season in which bees were working—carrying water, and pollen gathered from asters in the river bottom, into November. I was requested to make a note of this as bearing upon the winter problem. The colonies were left upon their summer stands, protected in the upper story with chaff cushions. On my return from Florida, April 15, all of the colonies responded to my "How do you do?" with the exception of four. Since then, in cleaning out these hives, I judged from appearances that they were queenless in the fall. The past four seasons had been poor for honey, and, having other duties more important, the bees were left to their own sweet will. I shall hereafter consider the rearing of young bees in the fall as one of the adjuncts to successful wintering.

SPRING FLOWERS.

My way from Florida north was through perpetual bloom, extending to Southern Illinois, Alabama taking the prize. Her woods were in fitting garb for the Eastertide. Some of the trees that I was told by residents were dogwoods, were entirely covered with white blossoms, without leaves; others had green leaves among the white bloom. Pink honeysuckles, so light and fairy, were a thing of beauty, and, when once viewed, will never be forgotten. North of Montgomery the yellow jessamine was very abundant, climbing to the tops of the small pines, and bending their heads with the weight of bloom. Passengers came into the train carrying bouquets and baskets of flowers, and boys offered them for sale at the stations.

The orchards of Tennessee were in full bloom, and a passenger from Nashville informed the writer that they had had no fruit there for three years, but had great promise for this. I was surprised, on reaching Southern Illinois, to find the peach-trees in pink, and still more so on reaching home to find the buds showing pink in our garden. Fruit-bloom has been very abundant in this locality.

Peoria, Ill.

HOW TO PREVENT THE FLAT COVER FROM WARPING.

I see there is some trouble from cleated flat covers warping, and, in consequence, you have devised a new cover to take its place. Now, I have nearly 100 of the old covers, which have been in use from one to four years, and they never warp or check, and are as true as if made of sandstone. The bottom-boards are the same. This is the way they were put up: Before putting the cleats on the ends, the ends of the cover were given a heavy coat of white-lead

paint. The groove in the cleat was given the same, and put on and nailed into the end of the cover-board while the paint was still wet. They were then painted two coats all over, and the crevices filled with paint, so that the cleats were as secure as if they had grown there. The bottom-boards were painted on all sides; but the covers, being covered with tin, were painted only on the parts not covered by the tin, except at the ends. My hives are exposed to the sun and weather the year round. They are of pine, and were made by you.

ALBERT WITTENMYER.

Emison, Ind., Feb. 25.

[We never had any trouble with the flat covers ourselves; but a few reported that they did. The painting of the ends of all boards for cleated covers, of the old-style flat, or the new Higginsville, will add greatly to the durability of the covers.—Ed.]

HIGGINSVILLE COVER WARPING.

Editor Gleanings:—On page 13 of GLEANINGS for Jan. 1 you say, in footnote to my letter, "The Higginsville model, besides the cleats and gable strip, is made up of two boards; and theory as well as practice shows that the warping tendency of the one will correct that of the other." I am not much on theories, but I have had five of these covers in use four weeks; and although it is not yet summer they are warped and twisted worse than any flat cover I have. My covers must act differently from those belonging to others; for, instead of the "warping tendency" of one "correcting" that in the other, it seems to aggravate it. Two of the covers fit fairly well, except that the groove is too wide at the ends; and the thin edges of the covers curl up. Two stand on three legs, and the thin edges bow up. One does not fit down square, and the cleats are warped so as to almost let the thin edges out of the grooves. The gable strips of all are warped. I have not a single flat cover in the yard but that is in better condition. They are lighter, and blow off easier, though no cover is safe here unless fastened on or weighted.

UNCAPPED FRAMES OF HONEY GIVEN TO BEES IN THE SPRING.

I find from careful tests, that, from each pound of capped honey, the cappings if saved will make on an average about $\frac{1}{4}$ oz. of beeswax. This is quite an item when beeswax is 30 cents, and extracted honey 4 or 5 cents. I have saved as much as 50 lbs. of wax from 30 colonies, run for extracted honey (spring count); just from cappings with scrapings of hives and frames.

CLARK A. MONTAGUE.

Sang Run, Md., April 15.

[This doesn't tally with the experience of others along the line of covers. You say the cleats are warped so as to almost let thin edges out of the grooves. There is actually more wood in a cross section of the Higginsville cleat than of the ordinary flat cover. Under the same conditions it should warp actually less. You say further that the grooves are too wide

and that the thin edges turn up. This is not a fault of the principle but of the workmanship, and if you got the covers of us you are entitled to a rebate. You do not say one word about the use of paint. Without it I should not expect any cover to stand true. Well, let's have the truth, at all events. I'd like to hear from others.—Ed.]

WHY THE HEDDON HIVE IS NOT APPRECIATED.

The reason some apiarists fail to appreciate the many advantages offered by the Heddon hive is that they do not understand the peculiar system of management which the successful manipulation of this hive requires. Mr. Heddon seems to think he is not called upon to promulgate this system till he gets ready; but I say he has no right to patent an article and then withhold from the interested part of the public any thing essential to its use; for by such patent he debars others from discovering the patented principle who would place it before the public in a shape that it could be used.

In the Heddon case, the hive is secondary to the system of manipulation which it admits of; for without such system the hive is no better than, if as good as, the Dovetail; but having a knowledge of the proper way to handle the hive, one can do from two to four times the amount of work in a given time that he can with any other hive.

Loss in this (Linn) county, 95 per cent for this winter. F. H. RICHARDSON.

Laclede, Mo.

MUD-FLINGING OR HOLLOW PRAISE.

Dr. Miller, in a recent *Stray Straw*, refers to a "good time" Editor Leahy had with J. T. Calvert, and proceeds to remark: "Now, you can fling all the mud you like at the mutual-admiration business; but that sort of talk makes a good bit nicer reading than mud-flinging." Has there been any "mud-flinging" in regard to this matter? Is it fair to use a term of this kind to characterize disapproval of a too liberal use of "taffy" in certain quarters? Honest criticism should include commendation when it is deserved, as well as the pointing out of faults; but there is such a thing as flattery, and it is most abominable and mischievous. Are there not often words of praise in the bee-journals that every one knows to be mere hollow compliments, intended to make and keep those to whom they refer good-humored, pleased with themselves and with others? Is it not plain that there is a virtual compact in some quarters, "you scratch me and I'll scratch you"? Is this manly, truthful, not to say Christian? One of the wise and good men of the olden time said, "Let me not, I pray you, accept any man's person; neither let me give flattering titles unto man; for I know not to give flattering titles; in so doing my Maker would soon take me away." We are taught on high authority that "a man who flattereth his neighbor spreadeth a net for his feet," wherein

he is likely to be tangled with vanity and pride. Again, "He that speaketh flattery to his friends, even the eyes of his children shall fall;" i. e., they shall lose the power of moral perception, and be unable to discriminate between truth and falsehood, good and evil. One of the grandest characters that ever lived in this world could appeal to those who knew him and say, "Neither at any time used we flattering words, *as ye know*." I wish every writer in the bee-journals could truthfully say this, and that there might be an end to all vain and fulsome flatteries. Flattery is lying, and a liar is despicable. The dictionary definition of "flattery" is, "To inflate with blandishments or exaggerated praises; to deceive with fair words; to cajole; to wheedle; to coax; to attempt to win by artful compliments; to soothe or gratify by praise or obsequiousness; to please a person by applause or favorable notice; to compliment." It is time the columns of the bee-journals were for ever closed to this kind of thing. WM. F. CLARKE.

Guelph, Ont.

[What Mr. Clarke has to say is very good—yes, excellent; but that bee-journals or bee-keepers are frequent offenders in the use of "words of praise . . . that every one knows to be hollow compliments," GLEANINGS is not prepared to admit. There has been no "mud-flinging" at the "mutual-admiration society" so called; but there is such a thing as mud-flinging at individuals that is ten times more "abominable and mischievous" than any flattery I ever heard or read.—Ed.]

PETITION.

Whereas, the Hon. Secretary of Agriculture, in his last report to the President, says, "The Entomologist strongly recommended as a part of the work of this fiscal year the attempt to introduce into the U. S. from Ceylon the 'Giant bee of India,' *Apis dorsata*," and

Whereas, it now remains with the bee-keepers and farmers to unite in petitioning the proper authorities to carry out the work recommended by the Entomologist, therefore,

Resolved, That we, the bee-keepers of Ontario Co., N. Y., in convention assembled, respectfully ask the publishers of the bee-papers to print and distribute with their paper a petition to be circulated by each subscriber, the extra expense to be shared pro rata by the various bee-keepers' societies throughout the United States.

C. A. OLMSTEAD, }
E. H. PERRY, } COM.
E. HUTCHINSON, }

RUTH E. TAYLOR, Sec., Bellona, N. Y.

CLOSE-FITTING FRAMES.

Close-fitting frames, as Mr. Heddon uses, won't do south. They will swell so at times, especially in winter and spring, that they can't be pried out. I knew from trial, and I had more play than he gives. A. F. AMES.

Claremont, Va.

DIXIE LAND; THE VERDICT OF A MAN WHO IS NOW IN CALIFORNIA.

I read A. I. Root's southern travels with the greatest interest. What he says is every word correct. When he says that Dixie is "just slick," he is right. I have been over Uncle Sam's domain, and know of what I speak. Taking it all in all, the South is hard to beat. If you look it up you will see where you shipped goods to me in the State of Washington. I lived five years in Florida, fourteen in Texas; was raised in Kentucky. I lived in Washington ten years, and this is my second year in California. I spent five months in San Diego Co., and have a tolerably fair idea of most places, and my choice is Southern Alabama.

Upper Lake, Cal.

G. P. SHIRES.

[If our readers will turn to page 355 they will see that Rambler mentions meeting friend Shires in California.—ED.]

BEE-STING POISON, ETC.

Bees are doing finely. I had 26, spring count, now 56. Last evening I transferred the Italian colony from the box hive to one you sent. Twice in my lifetime bees have thrown something into one of my eyes. It smarts and turns red immediately. I have never heard of any one else who is troubled in that way.

Box Elder, Va., May 18.

J. H. ALLEN.

[Friend A., I have many times, while near angry bees, felt the sensation you describe; but, as you mention, I do not know that I have ever before seen it in print. Sometimes when you open a hive during cool weather, cross hybrids will elevate their stings, and you may see a little drop of poison hanging to the sting. If you take the trouble to taste this you will find it a very pungent, acrid poison. Now, I have sometimes thought that an angry bee might, while on the wing, flit or throw this poison so it might go into a person's eye. Under similar circumstances we often smell what we call bee-poison. In preparing stings for medicine this is quite perceptible, and some people seem to be disagreeably affected by being around when this poison seems to be very much in the atmosphere. Very likely it is more or less volatile, and the odor of it in the air may affect the eyes, and perhaps other organs. Can somebody tell us more about it?—A. I. R.]

DESTROYING SWARMING-CELLS: LANGSTROTH VS. SECTIONAL BROOD-CHAMBER FOR THE PURPOSE.

In that valuable article by E. France, in GLEANINGS, Dec. 15, on out-apiary management, he puts the key to his plan of swarming-time management by periodic visits in a line or two of print, and it is a pity, seeing the amount of work and care involved in following his instructions, page 934, viz., "*Be sure no queen-cells are left in any colony,*" and, further down, "*Leave no queen-cell in the old colonies,*" to let it pass without comment. It is truly good sound advice; but with the L. frame and hive, how laborious! how risky! all hinges on *not one cell being missed* in the work of destruction. A mere cup with an egg in it, accident-

ally overlooked, means a swarm issuing before the 10th day comes round, and with it the apiarist. This plan of getting the swarming-date of a number of colonies on the same day, so dispensing with a watcher, is one I have carefully studied and followed in my out-apiaries for three seasons past. But I give them now but nine days between visits; and when there, instead of destroying cells one by one, I turn each of the brood-cases upside down, which effectually and positively destroys all embryo queens, and none can escape, and the colony is safe for nine days. This colony is swarmed on next visit; also all others like it previously inverted. The other colonies are inverted if strong, or likely to swarm; and if they have cells sealed next visit, they are swarmed in their turn; but if they have young cells, or none at all, they are inverted again and are safe till next visit, and so on with all hives as they advance to swarming strength every nine days for the two or three months of our swarming season.

This inverting has other advantages that have been set forth by other writers, including Mr. Heddon, whose hive, or a modification of it with hanging frames, I use in my out-apiaries; but I have not seen its superiority in this respect, and the rapidity and certainty which with it the cell destruction essential to such a system of periodic visits can be accomplished, set forth anywhere. Any easily inverted hive would have the same advantage over non-invertible as the Heddon type has. Inversion is not a mere fanciful and pretty idea; it is to me the key of out-apiary success, and does away with all need of swarm-catchers, and hivers and traps and appliances outside the hive itself.

T. BOLTON.

Dunkeld, Victoria, Aus.

I have had the same trouble John K. Goodrich had. Some thieves carried away three hives of bees at different times, and the arrangement spoken of in GLEANINGS seems to be just the thing. Would you please tell where such a battery could be bought? Others might be glad to know.

GUSTAVE GROSS.

Milford, Wis.

[A battery and an electric call-bell outfit can be purchased at any of the electrical-supply houses for about \$2.50. Write to Stanley & Patterson, New York City.—ED.]

THE STRENGTH OF BEES.

A French naturalist, Mr. Plateau, has tested various insects to ascertain their strength, and finds that the smallest ones are very often the strongest. According to his experiments, a bee can drag off 30 times as much as a horse can, according to its size. One bee dragged easily 20 others, and showed a power proportionate to a locomotive. What astounding muscular power the bees must have, we think, when we

remember that the weight of a whole swarm hangs from a limb, when but comparatively few bees touch the limb itself.

Medina, O., May 23.

K. R. MATHEY.

SOME UNSCIENTIFIC AND INACCURATE TEACHING CONCERNING BEES, IN A COLLEGE TEXT-BOOK.

Mr. Root:—In a book at present used in the State Normal College, in Albany, entitled "Comparative Zoology, Structural and Systematic, for use in Schools and Colleges, by James Orton, A. M., Ph. D." new edition, revised by Charles Wright Dodge, 1894, Harper Bros. publishers, I find the following statement in relation to the bee:

"They exhibit three castes—females, or queens; males, or drones, and neuters, or sexless workers. There is but one queen in a hive, and she is treated with the greatest distinction, even when dead. She dwells in a large pear-shaped cell, opening downward. She lays three kinds of eggs; from the first come forth workers; the second produce males, and the last females."

I send this as a bit of curiosity, showing how the colleges are advancing(?) in bee-knowledge.

Menards, N. Y.

JACOB KAUTZ.

[Such scientific (?) teaching is disgusting. If it is a fair sample of the accuracy of the other matter in the book I should be sorry to have my boy use it as a text-book. The authors evidently got their knowledge on bees, such as they do have, from a very careless reading. It is very unsafe for *any one* to write on the subject without a little practical experience to throw light on what he is reading. Prof. Comstock's book, notice of which appeared on page 409, last issue, is in marked contrast. Prof. C. went to the bees himself.—Ed.]



Eight extra pages as usual.

The *Apiculturist* for March, April, and May is here, bound in one cover, but not any farther for the consolidation. Is it a quarterly?

"REV." is the title in front of Emerson T. Abbott's name, as printed in the *A. B. J.* That may be a Rev-elation to some; but it belongs there, and deservedly.

THE new bee-paper, the *Southland Queen*, is out, issued by the Jennie Atchley Co. It contains 22 pages and a cover, and is edited by the Atchley family. Monthly, \$1.00 per year.

THE accurate and scholarly typography of the *British Bee Journal* is a pleasure to those who are pleased in that way. In this respect it presents a marked contrast to—some of us.

THE late frosts that have prevailed throughout the country have done a good deal of damage; but we hope they have not affected the nectar-bearing flora that will come on later.

AFTER a trial of 30 years, Dr. J. P. H. Brown, in the Southern Department of the *A. B. J.*, says, "I am satisfied it does not pay to cultivate plants exclusively for the amount of the nectar-secretion."

E. B. WEED, in the *Canadian Bee Journal*, claims that the bleaching of wax in sunlight gives a better result than by the use of acids. We believe that is the position taken by Mr. Mathey, whose articles on wax we are now printing.

WM. McEVOR, the foul-brood inspector of Ontario, reports bringing 109 colonies through the winter in good condition, not losing one. That's something on the Boardman style; and several others in Canada report wintering with little or no loss.

FOR the first time since *Stray Straws* were published, we have failed to receive our installment for the current issue. We have not learned the cause up to the time of going to press. Kind o' suspect the doctor prepared them, put them into an envelope, then into his pocket, and forgot to mail 'em.

DURING the preparation of a part of this number I have been somewhat under the weather, but I am now coming around all right. The consequence is, most of the editorials were written by W. P. He prefers to use the editorial *we*, because, he says, it rhymes with P. So you can designate his by the use of "we."

WHAT shall the harvest be? is a conundrum with bee-keepers all over the land. Indeed, it is a conundrum every year; but it seems to be more so this year than ever. Mr. Harry Lathrop, of Wisconsin, writes that the prospect is poor. Last year Wisconsin suffered terribly from the drouth, and many of the bee-keepers obtained little or no honey; but Mr. Lathrop did well.

WE copy the following from the *Newaygo Republican* of May 9. It fully accounts for the fact that Bro. Hilton has been missing for some time.

Hon. Geo. E. Hilton returned from a week's stay at his home yesterday. He is receiving many congratulations from his colleagues upon the fact that he is the proud father of a nice little girl. Time bears out the prediction made in the first of this series of letters that Mr. Hilton would prove to be one of the most popular as well as active and useful members of the House. No man is more highly respected than he, and no man in either House has more friends. He has much influence; and it is

needless to say to Newaygo County readers that it is never exerted in a bad cause.

IN the *Apicultural Review* (Spanish), published by Mr. Andreu, at Mahon, Balearic Islands, near Spain, we learn that indications for a good crop of honey are very favorable—plenty of rain, and an abundance of flowers. The editor says the price of wax is steadily going up, while that of honey is continually going down. He recommends the policy of keeping bees for wax only; and his article on the "Production of Virgin Wax" is so timely that we will translate it for a future number.

WOOD-BASE FOUNDATION, AGAIN.

SINCE our mention, in the last number, on p. 408, of Schmidt & Thiele's foundation, we have received another sample having a very much thinner wood base. S. & T. write concerning it:

We herewith send you another sample of our veneer foundation. The veneer we use now is only $\frac{1}{8}$ of an inch thick. This will not warp, or trouble in cutting queen-cells, and is still strong enough to keep the combs from melting, sagging, breaking, falling out of frames when handling or extracting.

This is a big improvement over the first sample received. Of course, it can not possibly sag, and would, I have no doubt, make good brood-combs; but I am still inclined to think it is more expensive than ordinary brood foundation such as is generally sold. A great many times old things that have been discarded and declared valueless in the past, have come up again and demonstrated that there is something of value in them after all. Possibly the wood-base foundation of Schmidt & Thiele may be one of the things of this kind. I have no doubt they would be glad to send samples to any one desiring to see it. Their address is New London, Wis.

THE STANDARD DICTIONARY—A GREAT WORK.

AFTER five years of labor on the part of 247 editors and a host of helpers, and the expenditure of a million of dollars, this superb dictionary is finished, and it is far ahead of what the publishers promised at the outset. It defines every English word and its derivatives, with every shade of meaning, in every branch of science and art, making a total of 301,865 words, or 55,000 more than Webster's International. The time has past when any one man might write a dictionary of our language; hence on the Standard a specialist was engaged on every line of human thought and work, such as astronomy, botany, chemistry, electricity, physiology, etc. In defining apicultural terms, for instance, Dr. C. C. Miller was engaged. When Webster's latest edition was published we were surprised at some of the apicultural definitions, especially under the word "Propolis," which is spoken of as forming the capping of honey-cells. Finding it was too late to have any corrections made in Webster's, we immediately wrote to

the publishers of the Standard, which was then completed only to the letter B, and urged them to secure the services of Dr. Miller on behalf of bee-keepers. They did so just in time, for the old errors were beginning to show again as the word "Bee" was reached. The publishers immediately corrected the type so as to correspond with the suggestions. So far as apicultural terms are concerned, we find no room for improvement nor ground for complaint in the Standard. This is not intended as an invidious comparison against the International, which, at the time of its publication, was the best dictionary ever printed, but to show the great advantage the last one has in profiting by the mistakes of others. The publishers of the Standard have had some of the most prominent editors of Webster's, The Century, Britannica, and other lexical works, on their own staff, and have left no means untried for securing information wherever it could be found. The English press as well as American pronounces the highest eulogies on the Standard.

The defining part of the book contains just 2100 pages, printed in very fine type, copiously illustrated with new cuts (about 5000). Birds, badges, colors, coins, flowers, precious stones, etc., are shown in their natural colors, and not all in dull black. The different parts of modern machinery, such as engines, type-writers, knitting-machines, looms, etc., are fully shown and numbered; also the bones, veins, muscles, etc., of man and animals. The locomotion of dogs and horses is shown by numerous pictures taken from snap-shot photographs that were taken at different stages of the step, run, amble, or leap. This feature is very unique. The book not only describes the word "apple," but describes fully every known kind—about 368; and when it comes to the weights and measures of the world, one feels lost as in a labyrinth. The principal words used in all the arts, such as architecture, carpentry, printing, etc., are grouped by themselves, besides being defined in their proper place. Some 218 pages are devoted to grammatical corrections, pronunciation, foreign phrases in several languages, disputed spellings, etc. The quotations used are on the side of morality, Christianity, and temperance.

The printing of the book is as good as human skill can make it—every page being like those found in our standard magazines, and the binding corresponds. But the best idea the reader can obtain of the book, without buying it, is to send 10 cts. for sample leaves of it, which will show more at a glance than we can say for it in a day. Address The Funk & Wagnalls Co., 30 Lafayette Place, New York.

This is not a paid "puff" or editorial in any sense of the word. It is written without any knowledge on the part of the publishers of the Standard, and simply because bee-keepers will find the book to be so reliable in defining apicultural terms.



HONEY FOR HORSES.

You may suggest it would be a rather expensive feed. Well, circumstances alter cases. It may not be so expensive after all. Listen. Friend McMillan wanted a pony to go to town with, and to run around the neighborhood. A neighbor offered him a mustang at a very low price, because the animal was vicious and unmanageable. Friend M. and his good wife, however, decided they could educate the pony to be useful, and the neighbor brought him over. It took two men to deliver the new purchase—one to drive and the other to lead the horse by the bits; and as it was, they came in sweating and puffing, and seemed very glad indeed of the privilege of turning over the property to its new owner. How did they make out? Well, it was my pleasure to have very many pleasant rides around the country with that same pony. Now for the secret. I have heard of \$50 secrets, and I do not know but this one would add \$50 to the value of very many a balky or vicious horse. I think the credit of the discovery belongs to the good kind-hearted Mrs. McMillan. I suppose you have heard it said that the shortest cut to a man's heart is down his throat. Everybody knows it is not true, but there may be a *grain of truth* in it. Well, Mrs. M. set out that very first day to win not only the affections but the good will of the mustang pony. She gave him bread and butter and honey to start with. Come to think of it, I do not know but the butter was left out, and so it was only bread and honey. The tempting morsel hit the spot exactly; and after the pony had had a good slice of bread, with a liberal allowance of honey, he would nod his head with satisfaction, and do almost any thing they wanted him to, for a *whole hour*.

We were late in starting out; but when we got hitched up, and I was in the buggy, the pony made a bee-line for the back door of the kitchen. His benefactress came out to give him an approving word; but friend McMillan said we were so late we shouldn't have time to wait for him to have his accustomed sweets. The pony looked terribly disappointed, and evidently had almost a mind to go back to his old life, and act badly. I plead for him; but friend M. said he was old enough to behave himself without being coaxed like a baby *every* morning, and made him go on. He went very well till we came to the store and postoffice; and I presume, as this was a frequent program, he expected us to turn back and go home, refreshing himself by the way, no doubt, in thinking how nice that bread and *honey* would taste when he got back. His master, however, had planned a long trip for him, before getting home; and when his head was turned in another direction we came so near having a circus performance right in the public street that I wanted to get out. My companion, however, assured me he would bring his horse around all right in a few minutes. When I questioned him as to how he *knew* he would, he said they two had had a good many rough-and-tumbles in the sand, and the pony knew that *he* knew who came out on top every time at the ending. So the pony, philosophizing, evidently, that "what could not be cured must be endured," took us all over the surrounding country before we got home. I want to stop right here long enough to tell Mrs. M. to go and give that pony an extra piece of bread, well sopped in good

honey, just the minute her eyes meet this in GLEANINGS.*

In the neighborhood of Fort Reed is a most beautiful country residence belonging to Rev. Lyman Phelps, whose writings perhaps many of you have seen in the religious papers. He has not only a magnificent orange-orchard, but peaches, pears, strawberries, and ever so many other fruits right along the margin of one of the prettiest little sheets of water (Silver Lake) to be found in Florida.

Sanford has something unique in the way of sanitary arrangements. The sewage is in a series of open ditches, covered only at street-crossings. Well, at the head of each street, away off at the back side of the town furthest from the lake, an artesian well has been put down. I think they have to go something less than 100 feet in order to meet an immense flow of water. These artesian wells send a sufficient current over and into the lake to wash all the filth and every thing else out of the open ditches as soon as it falls in. One feels like protesting against such a waste of water; but everybody says the supply is inexhaustible. No matter how many wells you put down, or how large, they just flow and keep flowing, year in and year out; and yet with all this abundance of water, that runs of itself up to almost any height desired, it is only here and there that it is as yet made any use of for irrigation.

I had arranged to meet Constance, who was stopping with relatives in Jacksonville, at Sanford; but there had been no very definite appointment; and hunting for strangers away down in the interior of Florida, when you didn't even know when they would be along, seemed a good deal like hunting for needles in a haystack. I inquired for Mr. Ming, a cousin of mine, connected with the Orange-belt Railroad; but although all the railroad men assured me he was a "mighty good fellow" nobody could just then put his finger on the man. I began to get somewhat homesick. I always do when I have time, therefore I usually manage when away from home to avoid having time for any such recreation. I was up very early in the morning, before any one else was stirring. I finally met a porter who was hustling up a drummer that he might not miss his train. I felt restless, and wanted to go somewhere, so I concluded to go on the same train with the drummer. It was on the Orange-belt; and just as soon as I stepped aboard I almost ran against my cousin, Mr. Ming. He said the women-folks, Constance included, would be in on the afternoon train from Jacksonville. It did not stop raining just that minute; but if you had looked into my face you might have thought there was very bright sunshine everywhere. Now, perhaps some of our readers do not enjoy having me tell about how an unseen presence often seems to guide my steps. When I arose that morning I prayed earnestly, and yet I am afraid with very little faith, that God would direct me on that rainy morning, so that I might find Constance and my relatives. As soon as I heard the porter say this man would be late for the train, without knowing *what* train, or on

*Every bee-keeper knows how passionately fond of honey bears are. Well, several circumstances seem to suggest to me that this strong love for this peculiar form of sweets is not confined to Bruin alone. Bruin, by the life he leads, has an opportunity for discovering honey, and to satisfy his craving for it, while other animals have not; and may we not take advantage of this strong liking and use it to put a horse on his good behavior? Will somebody test it on a balky horse, and report? After he has acquired the appetite, the honey would surely serve to divert his attention from his "sulks," if nothing more.

what road, I felt a strange longing to take that very train too. I had just been feeling that I must do something, or go *somewhere*, that dreary, rainy morning, and the way seemed to open almost of itself. Do you remember that old hymn,

He leadeth me ?

Mr. Ming said he was going down to Oakland, and would be back in the afternoon; and as I had nothing else to do he said I should come along and look at his road, and see the country. As we passed through Palm Springs I got just enough of a glimpse to feel sure I wanted to stop there. A little further on we passed, quite near Oakland, a solid hundred acres of oranges. Over the arched entrance to the grounds I read, "Forest City Orange-orchard." I was told by my companion that it belonged to some prominent merchants in Cleveland, O.

Constance was evidently as much delighted in the afternoon to find her father where she least expected him as I was to see her. Before leaving Oakland, however, I got a chance to run up to Palm Springs, and investigate. In a little shady nook were great palm-trees that threw their protecting branches all over and around, and a beautiful crystal spring boils up, sending out a volume sufficient to make a good-sized creek. The waters are just warm enough for nice bathing, and there are seats arranged on the mossy banks, making it a most inviting place for picnickers or pleasure-seekers. Learning of a bee-man only a mile and a half away, I walked out to see him, and met a generous welcome. He had suffered by the frost, but was very busy putting his ground in good shape again to put in another crop. The bee-hives, the fruit-trees, the different buildings for poultry, grain, domestic animals, etc., scattered through a large dooryard, made one think of the old-fashioned farmhouses. While others were complaining, and saying that farming does not pay, and that there was no use of planting any more orange-trees, nor in *fussing* with them any more, he and his good wife were bright, hopeful, and enthusiastic. "Why," said he, "Mr. Root, I sold over \$600 worth of oranges right out of this dooryard, in 1894. Why should I give up and get discouraged?"

The Orange-belt Railroad has packing warehouses along its whole length. Sometimes it seems as if there were an orange-house and station every mile; and, in fact, some of them are less than a mile apart. In consequence of the freeze, however, business was, as might be expected, dead, and things looked dull.

Our party left Oakland in the afternoon, catching me on the train, and went through to Tarpon Springs that Saturday night. On the way to Tarpon Springs we passed through the great tomato regions round about Claremont and the strawberry-farms near by. We passed the Sabbath at Tarpon Springs. Here, as in almost every town in Florida, were very pretty churches, filled with good audiences who listened to able and intelligent pastors. Tarpon Springs gets its name from another of these wonderful springs, connected, evidently, with the artesian water. This spring is so great that pleasure-boats of all kinds run out into the lake and gulf adjoining. This water, however, has a dark color, similar to that I have spoken of that gets its hue from the roots of the saw-palmetto. Iron pipes have been screwed together, and pushed down into the crater of this spring some 200 or 300 feet. They did not touch bottom even then; but the sides of the cavern presented so many shelves that the rod would strike on a projecting shelf and prevent going down any further. Well, this spring is intermittent, and it is supposed to have a subterranean connection with a lake several miles

away. The water in the lake is dark, like the waters of this spring; and during a severe drouth, when the lake is nearly dry the water stops running. Is it possible that the artesian wells of Florida are fed by the multitude of lakes standing on higher ground? Almost the entire soil of Florida is so sandy the water would readily get down through into the rocky strata composed of coral, and the phosphatic rocks that are opening up such a great industry just now.

We stopped at a hotel called the Ferns, and I for one came pretty near falling in love with the Ferns, the town, the spring, the people, and especially with the old white-haired pastor of the Congregational church. I called on him before services, and then had the pleasure of listening to his talk to the Bible-class before preaching.

At an early hour Monday morning we stepped off the train at St. Petersburg, at the southern termination of the Orange-belt Railroad. The first thing that enlisted my attention was seeing horses and wagons, away out in Tampa Gulf, not only half a mile, but a whole mile from shore. These wagons went out to get freight from the boats, and there was a regular traffic back and forth all day long, taking advantage of the rise and fall of the tide, as a matter of course. The bottom of the bay is hard firm sand, and level enough to be good wheeling. They say the horses have learned the trade so well that they go out in the water anywhere, providing they can keep their noses above the surface. But I tell you it looks funny to see a regular traffic going on all day long, sometimes with the horse, and wagon too, almost submerged with the exception of the box holding the merchandise. I suppose they have regular pathways, and know where they can go and where they can not. When the tide is out, people walk along the sandbars out into Tampa Bay for fully half a mile. The sand is clean, and furnishes nice firm walking. The Orange-belt Railway has a new pier which runs out from shore a *full mile*. They evidently expect to be ready for business when it comes again.

St. Petersburg is a great fishing-point. There are crowds of tourists fishing all day long, almost the whole length of the pier; and I am told there are parties who furnish tackle and bait; and not only that, they put the bait on and take off the fish. All the stranger has to do is to take the pole, throw out the line, and pull them in. All this is provided *free of charge*. You can fish to your heart's content without soiling your fingers, or investing a nickel in any thing. Why, this ought to be the fisherman's paradise. Even fine ladies can fish, and wear their kid gloves. Oh! by the way, perhaps it were well to mention that all the fish caught belong to the *owner* of the fish-poles, etc.

Our party took dinner at the big hotel—price 75 cts.; and the house was so full of guests that one sometimes had to wait *two hours* to get a place at the table. Now, you do not know A. I. Root very well if you think he is going to wait two hours for dinner. Just ask Mrs. Root how *she* thinks such a program would work. Well, I found a little humble restaurant called the Woman's Exchange. There was not very much style about it, but I found every thing neat and clean, and they gave me a great abundance of nicely cooked fish (such as they were catching all the while out on the pier), and the bill was only about 25 or 35 cts. This included coffee, potatoes, bread, and sauce. The Exchange is a branch of the W. C. T. U. work. They were nice friendly women, and they told me their principal reason for starting a res-

taurant was, there was no place where one could get a comfortable meal at a moderate price without going to the whisky and beer saloons. Of course, I do not give thanks out loud when I sit down in a public restaurant, but I several times gave loud thanks all to myself for the privilege of finding a place where I could get my dinner, supper, or breakfast, right away—well, say as quick as Mrs. Root would get it herself—and be waited on by good, pure, clean Christian women. When I contrast such a place with those I am sometimes obliged to put up with—say a meal of victuals served in a beer saloon—I should call the temperance restaurant a little heaven here on earth compared with the other place. You can call the other place what you choose. Now, when you go to St. Petersburg, just go into that Exchange and say an encouraging word to them. Constance thinks I am a little extravagant in my praise; but I am just giving you *A. I. Root's* opinion.

About six miles out from St. Petersburg I found our friend Charles Norman, whose articles have made him more or less acquainted with our readers. He is located away out in the wilderness, on the shores of the Gulf. His occupation is, bringing in garden-stuff, fish, and oysters to the town of St. Petersburg, especially to the large hotels. He too had suffered by the frost, and was, I fear, somewhat discouraged. The oyster-industry, however, was comparatively unharmed, and he and his boys take oysters to town two or three times a week. Right near his residence is a shell mound of pretty fair dimensions that was not made by the mound-builders of ancient time. The oysters are brought in by boat, and removed from the shells near the home I have mentioned. Now, that these shells may not be scattered all over his grounds, and occupy valuable land, the "shucking" is done on top of the heap. As the shells collect, the tools, etc., are pulled higher up; and finally they sit at their work on a heap of shells that bids fair, in a little time, to reach as high as the dwelling; and I was surprised to see how great an accumulation was made in just a few years as the result of the oyster-trade of just one person. Friend Norman has a very neatly arranged apiary under a great scuppernong grapevine, if I remember correctly. Most of the hives in Florida are shaded in this way during the great heat of summer.

About half way between friend Norman's and St. Petersburg I had my first glimpse of a good-sized wild alligator. I should have called it a log of wood on a pond of water; but the colored driver told me that this "gator" had been there for years. He has got a deep hole dug in the center of the pond; and when they try to capture him he buries himself down in the mud. He was lying partly out of the water, blinking his eyes in the sun as we passed by. It was near this spot, on our way home, that I met Thaddeus Smith—see page 219. Mar. 15. I need not tell you that friend Smith and myself had a "big visit;" and I, at least, am looking forward in anticipation of another visit some day up here in Ohio, where we both live. Friend S., like myself, was accompanied by a grown-up daughter. It seems a little funny that we bee-keepers must wait until we meet each other a thousand miles or more from home before we can become really acquainted.

Toward night I shook hands with Constance and the cousins, and they started back while I took passage on the steamer for Manatee. For quite a little while I felt homesick again, and consoled myself with studying the winds and the waves. Before reaching Manatee we passed through sea-water which looked almost like whitewash—I suppose owing to the exceedingly

white sand that was so fine the wind and the waves had mixed it mechanically with the water. At the pier I found my friend J. W. Bannehr, who lives about a mile and a half out in the country. The orange-trees here near the water, the most of them, held their leaves; and although the fruit was somewhat injured it was shipped almost every day to some extent. On account of so much sand I left my wheel at Sanford; but I greatly enjoyed my walk out in the country. For almost the first time I found green fields—yes, an acre or two of oats. You will remember grain is raised to a very small extent, and only in certain localities, in Florida. Finally I came on to a very pretty home with a neat fence around it, bee-hives stationed out among the orange-trees, and every thing so neat and tidy it reminded me of the English friends of my boyhood that I have spoken about in our book, "What to Do." Yes, friend Bannehr's people are English. They came from London. They first came to Florida some years ago, stayed two or three years, and got homesick, and finally returned to "Merrie England." But after they had stayed *there* a year or two they became more homesick than ever to go back to Florida. They came back here and located, evidently to stay the rest of their lives. Friend B. has good substantial fences all around his premises; then he has good substantial gates with corresponding fastenings. Why, it brought to mind vividly the gates and fastenings that Mrs. Root's father used to have down on the farm by the river. I was so much pleased with the gate-hinge that I am going to describe it right here. It is simply an iron rod driven in at each end of the stick forming one side of the gate. The bottom rod rests in a hole made in a stone set in the ground. The top pivot simply goes through an auger-hole in a piece of board nailed on the cap of the fence. Here you have a hinge that permits a gate to swing either way. It will never wear out; and if the gate ever sags, just pry out the stone a little that holds the bottom pivot. Right here I have in my notebook,—

"Five colonies increased to 28, and a big lot of honey."

I do not know whether friend B. did this or not; but I suspect he did. His hives are all set up on a little pedestal or stake. They are up about two feet from the ground; and in answer to my question he said it was to get them out of the way of the toads, and then he told me the following

TOAD-STORY.

When he first commenced keeping bees he noticed one colony so much depleted that he thought there must be some cause for it. Watching closely he discovered, just at night-fall, a big toad scratching on the entrance-board. You know the rest. Being of a humane disposition he picked Mr. Toad up and carried him away off down to the river, and carefully dropped him in. But there were more toads, and he kept carrying them away. Finally, after he had lugged off 30 different toads, by count, all at once the idea suggested itself that it was a little singular that there should be so many toads possessing such *marked family resemblance*. Thereupon he took No. 30, and marked him with white paint, for identification. He was consigned to the waters of the river as all his predecessors had been. What do you think? No. 31 was painted and decorated. I do not know what he did—at least I do not remember—with No. 31, but there were not any more toads around that particular beehive after that. You can figure out the moral yourself. Either put bee-hives up on posts, as friend B. has done, or else see that they (the toads) do not travel back during the night.

Almost every visit I made showed me not only model apiaries, but model appliances for poultry.

Friend B. has no boys, but quite a family of girls, and they and their mother look after their chickens. It is no strange thing in Florida to see hens with 15 chickens apiece of their own hatching; and where the *women-folks* have charge of them they generally raise the whole brood. But every thing in the poultry line has to be carefully shut up nights.

Away up north, when we heard people talk of Manatee we imagined it was a big city. I was somewhat surprised, therefore, to find it only a little village. Why, the great county of Manatee contains only about 3000 inhabitants, and so it is with many other counties of large area. You can readily understand, therefore, why they do not have graveled roads, expensive bridges, schools, churches, and other things. In our trips around the country we passed by a colored church, and I began making inquiries about the people and their religion. Poultry brings a high price in Florida—the colored people, a good many of them, paying as high as a dollar apiece for them. You know how naturally colored people take to chickens. Well, this colored church got in debt. In fact, a mortgage hung over it. To raise the mortgage they commenced having “chicken-festivals.” The church people would go to a chicken-festival, but they *wouldn't* put their hands into their pockets to lift the mortgage, and so they kept buying chickens of friend B. in order that the mortgage might be raised. Do you know how it turned out? They did not get the mortgage raised, but they did eat up the chickens, and had them, the chickens, to pay for besides the mortgage. Just now it occurs to me that I have heard of white people managing church debts something after that same fashion.



To this end was I born, and for this cause came I into the world, that I should bear witness unto the truth. Every one that is of the truth heareth my voice.—JOHN 18:37.

These words are quoted only by that beloved disciple, John, the faithful and intrepid follower—the one who kept nearest to Jesus during that terrible time that shook men's faith—the time of the mock trial and crucifixion of the Savior. Jesus spoke these words while alone with Pilate. The latter asked Jesus, you will remember, whether there was any truth in what these people were saying. “Art thou a king, then?” Then comes the wonderful answer: “To this end was I born.” The great purpose for which God gave his only begotten Son to humanity—the principal reason why he sent him down to earth to battle alone single-handed with the wickedness of humanity, was that he should bear witness unto the truth. Sometimes people say, when sorely provoked by the shortcomings of humanity, “There is not any *truth* anywhere.” And Pilate replied, perhaps in sarcasm, perhaps in sorrow, “What is *truth*?” My impression is, that Pilate had become so accustomed to *untruth*—he was so familiar with fraud, dishonesty, deceit, treachery, and *crime*, that it seemed almost a sarcastic joke, as we would say in common parlance, to talk about *truth*. I think Pilate was satisfied, however, that for once in his life he had met at least one human being—one individual

—who *was* honest and true. He goes back to the Jews and says to them, “I find in him no fault at all.” In the other gospels we are told also that Pilate seemed to recognize the whole thing as a farce, and a piece of Jewish spite and jealousy; for they had not succeeded in raising even a shadow of any reasonable excuse for fault-finding; yet they *hated* him all the more. Were there no good people in the world at that time? Oh, yes! but Judas and his band had planned to have this whole thing hatched up and carried out when the honest and true friends of the Savior were sleeping. The high-priests and their followers feared the multitudes, so they arranged their plan to have their mock trial when none of his friends were around—in fact, when no honest people were near. They hated the truth, and did not want it to come out. They were determined to crucify him *because* they knew he would speak the truth fearlessly and honestly. Their selfish, greedy schemes could not prosper while he was around; therefore the cry was, “Put him *down* and *crucify* him.” They did not want truth. They *feared* the truth. They loved darkness because their ways were evil, and *he* was the light of the world.

Oh dear me! if this were true only of the wicked and greedy high-priests of *olden* times, it would not be so bad; if only those who profess to be the chosen servants of God and of the Christian religion lived in olden time, and olden time *only*, we might console ourselves with the thought that the world is growing better, and we might take things easy, and not worry ourselves.

On page 276 of our issue for April 1, I mentioned, at the close of my talk, visiting the spiritualist camp-meeting at Lake Helen; and I mentioned that it seemed as if I were thrown there providentially. I did consider, at the time that Home Paper was written, mentioning some things that I heard rather than any thing that I *saw* that was not so pleasant; but I decided then to finish my chapter that day by speaking only of the *good* and not of the evil. A circumstance, however, has opened the way for me to say things that perhaps I *ought* to say.

I told you I employed a livery-team to take me five or six miles. The driver and I naturally discussed this camp-meeting. I can not at this late date remember exactly the words of this conversation, but it was something to the effect that he had attended one or two of the meetings. Once a week—Saturday night, if I remember correctly—they held a “seance,” if that is the right name for it, where the spirits not only wrote on slates, played on instruments, operated telegraphic machines, etc., but the faces of the dead appeared to the audience, and the departed ones conversed with their friends, shook hands, etc. The young man told me the admission fee was \$1.00.

“Why, my friend, are there people around here who can afford to pay a dollar to see things of this kind, especially after the terrible losses around here by the freeze, and the general widespread feeling of poverty, etc.?”

He assured me they did come in great numbers. In fact, he said it was a great place for *boys and girls* to visit. Somebody has told me since that they charged \$2.00 admission for each person. Never mind—it does not matter particularly. I asked him if the exhibition was made in the daytime.

“Oh, no! always in the night, and in a private tent.”

I turned, and looked him full in the face.

“Do you believe in the things that you saw? Were you convinced that these wonderful things were really miracles, and that they were the work of departed spirits?”

"Why, no; I do not believe there are any spirits about it, nor any thing miraculous, and I do not much believe the crowd did, although, of course, we could not explain things, nor understand how it could be done."

While I was at the meeting, a very bright and intelligent woman told me they were having wonderful miracles performed. If I remember correctly, she said she saw the face of her mother, who died years ago, as plainly as she saw my face, and talked with her. I could not well manage to stay quite an hour, and so, of course, there was no time for me to remonstrate or hold any argument. I did, however, object to the large admittance fee charged, but was told that "the laborer is worthy of his hire;" that they could not afford to travel about and give these exhibitions, which entailed considerable expense, without pay. How many times the little text has been quoted as an excuse for extortion and fraud! Again, I asked why those slates, instead of being screwed together, and put away until such a time as the spirits were willing, could not have been hung outside, on the side of the tent, in the broad daylight of noontime; and why not let as many gather around as could be collected from the surrounding country? and while thus exposed to full view, if the spirits were desirous of communicating with friends on earth, why not have this mysterious writing appear in the full light of day? If there were good reasons why their forms should be visible only at stated times, I could not see why the *writing* could not be done in sight as well as out of sight. I did not feel then that it was my province to criticise severely, or to find fault; but I threw out these remarks in a kindly, charitable spirit. They spoke of the miracles—wonderful miracles—that were being performed. Our Savior performed all of his miracles among crowds, and mostly in the open air, *free of charge*, and in broad daylight; and, in fact, he said to his accusers, "In secret have I done nothing." And there was not a single witness who could show where even for one brief minute he did *any thing* secretly. His life was *truth*, and there was no sort of reason for secrecy.

I had a few minutes to wait for the train. The conversation around the depot was, of course, in regard to the wonderful developments at the camp-grounds on the shores of beautiful Lake Helen. A boy in his teens said he had attended all their exhibitions. I do not know where he got his dollars, but he must have scraped them up in some way. He, too, said he could not understand how the things were done; but when I asked him if he believed it was the work of spirits he looked me over as if he thought I must be a stranger, or something more, and replied, "*Spir-its! not much!*"

When I sat in the tent I looked over the audience, the speakers, and the singers on the platform. The whole matter was of the deepest interest to me. Perhaps I never weighed individuals and studied faces as I did then. When I furnished the text for the speaker, "Thou has loved righteousness and hated iniquity," I was looking from one to the other, and wondering, "Does that fine-looking woman honestly believe she is helping the cause of righteousness? or can it be possible that she is one of the party who love iniquity? God forbid." I looked at the young girls who assisted in the music; surely *they* were honest and sincere; and then I looked at the men—gray-headed men—men of culture, experience, and possessed of a certain kind of power to move people by their eloquence. Are *they* parties to the iniquitous part of this work? I felt sure there was iniquity. It could not be otherwise. Not my own wisdom nor that of any other hu-

man being could draw the line through that congregation of people. But God himself knew. The great Judge of all the earth, who reads our hearts, knew just what part of that audience were scheming and planning and *loving iniquity*. Let us drop the curtain here, and let God decide.

Some little time after my return from Florida, friend Detwiler, known more or less to the readers of GLEANINGS, wrote me, inclosing a clipping from a Florida paper, exposing the party who drew the crowds at Lake Helen. He invited them to his home. They were furnished every convenience, and went through with the same program as at Lake Helen; thereupon friend D., with others present, conjointly and publicly advertised them as frauds and humbugs. A little later he sent me a full *expose* from another locality. As it seems wise to give these people some publicity to induce them to stop their work, we give the clipping in full:

OKLAHOMA CITY, O. T., Mar. 20, 1895.

EDITOR NEWS:—Yesterday a Mr. Goodrich, a former resident of Florida, handed me a copy of your paper bearing date of March 8, and called my attention to the "doings" of one Concannon, a pretended medium. That you might be informed of his escape here I hurriedly write your paper.

Mr. Concannon came to our city. He followed two women, who preceded him two or three weeks and quietly learned the "lay of the ground," and became acquainted with as many of our people as possible. The confederate learned who had lost children, how they died, and causes of death; also cases of deaths of grown people, especially those who left children behind them to mourn their loss. When Concannon appeared, quiet meetings were held among the element who desired most to see spirits. Gradually, as became known of his presence, his audiences increased, and the personnel of the meetings changed. The manifestations were good, and, to the credulous, unexplainable.

Knowing the "manifestations" to be "snides," and our people duped, a few of us set about to expose the fraud, and did so the first meeting we attended.

Concannon would put his feet into a pan of flour, take rice in his hand, and then have his coat-sleeves sewed to his pant-legs at the knees, and coat-collar sewed up. Once in this condition, the curtains concealing him from the audience would close, and singing and other music commenced to allay or entice the spirits.

Myself with one other attendant took matches along, and arranged that one should seize the "ghost" and the other strike a match and examine the "critter." Fortunately the medium wanted to converse with me about some matters, and I was called to the curtain. The lady with him took me by the hands and the spirit (?) appeared. When the position was favorable I seized hold of the "ghost," and, lo and behold it was Concannon—nude—mosquito-netting around him for "angel wings."

The exposure was complete. We had him, examined the pan of flour his clothing, the rice carefully laid away, and the clothes used to wipe the flour from his feet. Also some of the committee witnessed him as he donned his clothes and sewed up. He can slip into and out of his clothes in half a minute. The trick is easily exposed—is raw—and one of the greatest frauds ever perpetrated on a public. When Concannon was caught, the women fought like she-tigers. If they are still in your State, attend the meetings again; and when Concannon appears at the parting of the curtains, jump forward and seize the fellow.

A little paint would not hurt, for there is no more villainous occupation than trifling with the subject as he is.

D. C. LEWIS.

Along with the above, friend D. makes some comments of his own, and bids me make any extract I think proper. Want of space compels me to quote only half a dozen lines that make a most excellent summing-up of the whole matter.

The question arises, which horn of the dilemma the camp-meeting management will accept—that of being deceived for five weeks, or that of being a party to the deception—both very humiliating and annoying, no doubt.

J. Y. DETWILER.

New Smyrna, Fla., Apr. 11.

The great wonder to me is, that any intelligent audience should consent to sit still and see a man go through such absurdly ridiculous things as putting his feet into a pan of flour and filling his hands with rice, sewing up his pant-legs, etc. I know they did that at Lake Helen, because it was mentioned to me several times as proof that the medium could have had nothing to do with the manifestations. Are we to suppose that the spirits of the departed would indorse such proceedings in order that they might communicate with the present age? Why, it is a miserably wicked slur on our an-

cestors. What does *possess* people to shut their eyes and ears to sense and reason?

Well, friends, there seems to be a better day dawning. On every hand we see truth rising up out of the dust and ashes, and asserting itself. It is not only in our great cities that the confiding people have refused to be humbugged any longer by sneaks and traitors, but a general movement seems to be inaugurated to look *into* things and after *people*. Just now I find something in the *Practical Farmer*, right in line. Here it is:

Enos Harnden, seed-buyer for the Department of Agriculture, will soon make a report regarding sales of seeds by members of Congress. It will involve well-known men in a mess of petty crookedness. He has discovered that the seeds annually given members for free distribution among their constituents have been sold by many members. Harnden even bought some himself. For \$75 he bought of a member 14,950 packages of vegetable seeds 1365 packages of flower seeds, and 82 packages of field seeds. These seeds actually cost the government \$228, so that the member displayed a remarkable ignorance of their value. Mr. Harnden, while he was in the detective business for the Department, refused to buy more than 100,000 packages of seeds which had been paid for by the government, and given to members free, and were offered by them for sale. It is quite possible that, when this report is presented, it will put a stop to the free seed business altogether. The thing was started to enable farmers to secure new varieties of vegetables and grains, and thus enrich the agricultural products of the country. Last year \$160,000 was appropriated for the purchase of these seeds to be given to members of Congress, in quotas of 15,000 packages each, and in turn to be distributed by them among their constituents. But the custom has been so abused that it will probably be stopped altogether. No good has ever come of it that any one has seen.—*Chicago Times-Herald*, April 23.

It seems to me the thing to do is to come right out in print with the names of these members of Congress. If our American people, in their blind zeal for party, have put men into office who will steal packages of flower and vegetable seeds given them to distribute among the rural people, let them be shown up. Let them explain, of course, if there is any thing to explain. But has not this thing been going on about long enough? It kept coming to my mind, however, that our good friend Harnden might *also* have been swindled when he paid \$75 for over 16,000 packages of government seed, even if the government did actually pay \$228 for them.

We are greatly pleased to find in the *Rural New-Yorker* of May 4 an editorial which backs up with their characteristic energy all I have said about Electropoise. It is refreshing indeed to see a journal of such age, standing, and influence, lend a helping hand.

Now please bear with me, friends, while I make just one more application. The proprietors of Electropoise and Oxydonor are still running things with a high hand, with the aid of ministers of the gospel and our religious periodicals. They do not want truth. They have laid their plans on the assumption that investigation will not be made. It brings vividly to mind a part of a verse in the 28th chapter of Isaiah. "We have made lies our refuge, and under falsehood have we hid ourselves." They have humbugged a certain class of ministers and a few so-called professors, and they are becoming boastful, even while they laugh in their sleeves at the success of their treachery. Publishers of our religious newspapers do not want the truth, because the truth would stop their money-getting. This is hard and severe, friends, I know; but it is a terrible thing to be permitted to go on. One of our prominent religious newspapers—one that especially exhorts to *holiness* and *sanctification*, wrote me that it was not their business to in-

quire into the scientific claims of Electropoise. They do not want to inquire. The truth would cost them money. I asked permission to publish the letter they wrote to me defending their course. Permission has not yet been granted. They dare not grant it. They are obliged to shut their eyes to the scientific part of it, or else they could not consistently keep accepting the advertisement. Let the truth come out, just as it did under friend Detwiler's keen scrutiny at that spiritual seance. Let the truth come out, and be held up to the light of day as it is being brought out in the government seed business. Let the truth and the full facts in the case be held up to the public gaze as Parkhurst has been holding it up. And now let the truth come out and be held up with Electropoise and Oxydonor in the same way. If I am mistaken, and they have some truth somewhere on their side, it will do them good and not harm. "Ye shall know the truth, and the truth shall make you free."

LATEST FROM ELECTROPOISE.

It seems these people exhibit a tendency to abandon their fraudulent science, and come a little nearer telling the truth. We judge so from the following, which we take from one of their advertisements in the *Christian Herald* of May 8.

"It puts the body into such a condition as to be able to absorb oxygen more freely through the lungs and also through the pores as well. It is thermal electricity. These are our theories about it."

I would call attention to the closing—"These are our theories." This would seem to indicate that they do not exactly know *why* it cures folks. If a chemist or electrician should prove to them that there is no electricity about it whatever, I suppose they would be obliged to say they did not know *what* it was that performed the cures. I should like to ask them a few more questions. For instance: If you do not know what it is, why have you any reason to think it has any thing to do with oxygen? Secondly, what reason have you for putting sulphur and plumbago into that little metal case? What good does it do? To be honest, they would have to say again, "We don't know." Third, why do you demand \$25.00 for what costs you but little more than 25 cents? I do not think they will say they "don't know" this time, for they *do* know only too well. And now I submit the facts in the case to the people who claim to be cured. Do you believe that putting sulphur and plumbago into that little metal case, and dropping the case into a bowl of water, cured your ailments when even the men who make it must admit they have no reason for so doing? We once heard of a colored doctor who gave a patient, in case of an accident, some lead shot and some rosin. When the regular physician came, and demanded of the darkey why he had administered such a dose as that, the explanation was that he was pretty sure something "was broke inside." The lead was to solder up the break, and the rosin was to make the solder *stick*. Now, this poor unlettered friend had some reason and sense to back his proceedings. Can the Electropoise people give as much of a reason? And yet they talk about the human body being "polarized," "taking oxygen from the air," etc.

There are some testimonials that it seems do not get into print in the Electropoise advertisements. Here is one of them:

Mr. Root:—I have had the pleasure of receiving and reading a copy (April) of GLEANINGS. It is in regard to your article, "Our Religious Literature

and Electropoise," that I now address you. This subject is important to me, for two members of my family have been intense sufferers from chronic rheumatism; and when one sees his friends suffering he will make great sacrifices for them.

My uncle has rheumatism—can not walk a step. All winter he used the Electropoise, and received no benefit from it. It is true, we rented it; but if we had been more flush in money matters we would have bought it. Our physician brought it to us saying he had no faith in it, because it professed to cure too much. But another physician, Dr. Buck, of Leetown, W. Va., had been using it with varying success. One of the worst features about the whole thing is, they recommend it for the most dangerous and rapid diseases, and ask you to not take any sort of medicine while using it. I take the New York *Churchman*, M. H. Mallory & Co., 47 Lafayette Place, New York, and it has whole pages of advertisements, praising and recommending the Electropoise. I also take *Munsey's Magazine*, and the May number has two whole pages devoted to Electropoise. The address is Frank A. Munsey, 151 Fifth Ave., New York.

If you please, I should like three copies of GLEANINGS and a few slips to send to those two publications.

MRS. W. H. SEIBERT.

Kerneysville, W. Va., May 20.

If it is indeed true that our regular physicians are recommending, or even suggesting, to their patients that *charms* and *baubles* may cure disease, things are getting to a rather bad pass, especially when they recommend such a trap for chronic rheumatism. I would inform our good friend that both the *Churchman* and *Munsey* have been warned again and again of the fraud they are helping to push, and yet they keep on. By the way, our readers may not know that the instrument (?) is rented out at \$15 for three months. Just think of it—\$5 *per month* for a senseless trap that does not cost half a dollar in the first place! What are we coming to? I stated this plainly to the editor of a prominent religious paper; and his defense was, that people nowadays are getting great profits for almost every thing. Great profits indeed! How about the farmers, market-gardeners, fruit-growers, and other people? Besides, what would be the effect on the rising generation to let them see instances, right before their eyes, where people who stand high are getting \$25 for what costs them but little more than 25 cts.? Yes, I know I have been going over this thing a good deal; but it will surely be the ruin of our nation if this and other work of a similar kind is not put down and stopped.



THE RECENT FROST.

In our last issue we spoke of covering our tomatoes with pie-plant leaves. Well, we have been doing this for almost two weeks. The tomatoes were all saved, but they look pretty sick on account of being covered up so much; and, even though they did not get frosted, they are a good deal stunted from the continued cold weather. We saved all the plants under glass, except that the frost was so severe tomato-plants were frozen where they came up against the glass. On Monday night, May 20, the frost was so severe that cabbages and cabbage-plants were more or less injured. It made me think of the gardens in Florida after the frost of Feb. 7; and when I saw the mulberry-tree in front of our back door, with the leaves and half-grown berries all cooked, it made me think still more of Florida. We all have to take our turn

with disasters and disappointments, sooner or later; but if we are working right along in harmony with the plans of the great God above, we may feel sure that adversity as well as prosperity comes from a kind and loving Father.

It is interesting to note what varieties of vegetables and fruits stand the frost best. While all of our common raspberries have been more or less injured, even before the fruit-buds were open, the buds of the Gault raspberry, even those down on the creek-bottom ground, seem to be uninjured. They are a little later than some of the others, which may account for a part of it; but the plant is certainly exceedingly hardy. We shall have no more plants for sale until next season.

Among the strawberries I was much surprised to see our old friend the Haverland loaded with green berries as usual, while nearly all the rest, both green berries and open blossoms, are dead and black. The Warfield comes next to the Haverland in this ability to withstand frost—at least, so it has seemed during this last frost. Our wax beans are all ruined except some that were not yet up. And here is a good reason for putting your early plantings in to a pretty good depth, and for putting in, also, a great plenty of seed. If the frost injures the first to get up, you still have the last. In Florida I noticed that those who had beans *almost* up were the gainers. You see they would be several days ahead of those who had to plant after the frost was over. Our early corn had also to be replanted—at least, we thought best to replant it.

As usual, a good many people borrowed trouble more than they needed to do. For instance, our apples are almost uninjured; a great part of the cherries still hang on the trees, and are growing larger every day, even though they do look brown and blistered; the same with plums to a certain extent; and this morning I found a *peach-tree* that had, by some hook or crook, got through, and the peaches looked as fresh as if there had been no frost at all. The tree was close to a building. Our grapes are all destroyed except some vines tacked on to the brick walls of our house. The wall is a protection; and, besides, it holds the heat during the night.

We are gathering beautiful strawberries, that were in our plant-beds, protected by glass. With a very little protection you can have them two weeks earlier, and absolutely safe from frost. In fact, the cloth covering for beds will protect strawberries perfectly. I feel pretty sure it will pay to grow strawberries protected by glass, say in February and March; by cloth in April, and in May if it should be needed. They will bring a much bigger price than the berries shipped from the South; and after you get your beds, sashes, and cloth covers, it is not so very much expense to keep them perfectly safe; and if you sell plants you can in this way have runners and new plants for sale during June and July, when nobody else is prepared to fill orders; and early plants put out in the above months will do wonders in the way of getting a stand for the next season. Of course, water should be handy where one plans to put out plants during these hot summer months.

MICHEL'S EARLY STRAWBERRY.

This has again given us our first picking to-day, May 28, and they have stood the frost almost if not quite as well as the Haverland. The berries are of a good size for an extra early, splendid color and shape, and exquisite in taste, only perhaps a little tart. If they bore as many berries as the Haverland they would be an acquisition indeed. The Haverland, with its great handfuls of berries on a single stem, will

be perhaps a week later. We have a few plants of the Rio. This is, perhaps, almost or quite as early as the Michel's Early, and it seems to be larger, and rather better in shape. We have not plants enough to decide whether it is as prolific as the Michel's Early or not. Every strawberry-patch should have at least a few of these extra earlies. Both are perfect blossoms.

ONION-PLANTS.

We are just now getting ready to fill an order for 200,000. The purchaser is satisfied to plant them out almost as late as June 1, because he did the same thing last year, and had excellent success. He lost his first planting by frost; but rather than lose the use of his ground, which was nicely prepared and heavily manured, he is going to purchase this large number of plants. In consideration of the quantity ordered, and the lateness of the season, we let him have them for 50 cts. per 1000. There is a moral right here. After you have been to great pains to get your ground fitted and heavily manured or fertilized, do not let it go to waste. Try to make it grow something of market value.

SCARLET CLOVER ABOUT JUNE 1.

□What do you think? Our first sowing of scarlet clover was in among raspberries. It was put in some time during the latter part of September. It did not come up very well, however, and this spring there were so many weeds and so little clover that we cultivated it all up. Yes, it was pretty well cultivated twice, and then the whole raspberry-patch was thoroughly hoed out. Yesterday, however, while I was going through the premises with our friend Hugh Vankirk, of Washington, Pa., one of the visitors suddenly stopped and remarked: "Why, what new sort of clover is that in there among those raspberries?"

I was a little way off, and told him I did not know of any new clover; but come to get a little nearer there were great stalks here and there among the canes, from one to two feet high, bursting out in great blooms of these wonderful crimson strawberry-like heads. Why, notwithstanding all our cultivating and hoeing, there was in some places almost a fair stand of crimson clover. Now, you see I am going to try this thing again; and I do not know but there would have been quite a stand on the creek bottom, if I had not been in so much haste to decide it was all killed, and plow it under. This raspberry-patch was the only place where the clover could have made a show, for all the rest was plowed under fully ten inches deep.

WINTER OR EGYPTIAN ONIONS; SOME QUESTIONS.

How early in the spring can you gather them for market? How long do they remain tender and in good condition for the table? Suppose you plant the sets August 1st, in what condition are they the first of the following April? To what extent (in numbers) do they multiply? How many of those "long succulent stalks" you mention does it require to make 1 lb.? What do you mean by saying in your seed catalog, that you "plant them three to five inches apart, in a drill, about as you would peas"? Is not that a long distance apart for planting peas? How large is the average set that you plant in the fall? TIMOTHY HALLETT.

Galena, Ill., Apr. 25.

We gather the onions for market as soon as the frost is out in the spring; but they are pretty small at first, and it takes a good many of them to make a bunch weighing four ounces; but they commence rapid growth almost the

first thing that starts. In order to have them early, the rows should be well mulched with coarse stable manure. This will keep the tops from freezing, and it also serves to bleach the long stalk, and keep it white and tender. We use them right along every day until, say, strawberry time. When strawberries are ripe the Egyptian onions begin to send up seed-stalks, and become rather tough and strong. So we commence on the American Pearl onions, which are now getting to be of the size of hens' eggs or larger. The best onions (Egyptian) for spring use are from the sets put out in July, August, or September. They do not multiply until they have produced sets. After that, when the sets are gathered, and the big seed-stalk is cut off, the original onion splits up into a dozen or twenty little onions. In order to get the best quality and best size, the ground needs to be exceedingly rich. The number of stalks required to make a pound depends upon the season. If you plant large-sized sets as soon as they can be gathered, say in July, in very rich ground, along in May they may be so large that four or five would make a bunch weighing a pound. In saying that we simply sprinkle the sets in a drill, and cover them up as we do peas, I meant to show you how little trouble it is to plant them, and not that we put the peas as far apart as we do the onions. The sets from these onions vary from the size of a grain of corn to pretty nearly the size of a small hen's-egg. The large sets make the biggest onions in the spring; but it would be rather expensive for seed, to plant only large ones. The best onions for market are those from sets the season before; but if you do not use them all for bunching, and let them stand to produce seed, they will grow a crop of seed right straight along, year after year; and you need not touch a hoe or cultivator to them unless you choose. You can keep all weeds down by heavy mulching with coarse stable manure, on the plan Terry manages his currants, gooseberries, blackberries, and raspberries. The old stalks, one or more years old, may be used for bunching, but they are not nearly as tender, neither do they have as much of an onion at the bottom as those from sets planted only the summer before. They continue to split up each season, however, as soon as the seed-stalks are mature and pulled away, so that a single row ultimately becomes a great mass of onions, sometimes two feet across, the stalks being as close together as they can stand. In such a row you can get an enormous crop of sets, but it needs constant and heavy manuring to maintain the size of these sets each year. In fact, so easily are the sets raised that there is money in them at a dollar a bushel. Permit me to say again, that, to keep up the reputation of these onions, you should use only those for market which were planted the season before, and grow them on *strong rich soil*.

GRAPE JUICE AS A MEDICINE.

On page 475 of last year's volume, after speaking about the remedial qualities of pineapples, I said, "I am told that grape juice, when properly canned up, just as expressed from the ripe fruit, makes a most healthful and nourishing beverage." The above was called to mind by a *present*—I think it came in a box of wax—two quart bottles of Niagara-grape juice. It came from C. J. Baldrige, of Kendaia, N. Y., and I want to tell you that the juice is exactly the same as that from the Niagara grapes themselves. Its appearance in the bottle is a beautiful transparent amber or straw color; and it is about the most delicious thing in the way of a beverage I ever got hold

of. I afterward learned from one of the book-keepers in our office that they had some grape juice from Concord last year, when the fruit was so cheap, and she kindly brought me some samples. With such a test as I was able to make, I am quite certain these pure fruit juices will many times cure sick-headache caused by indigestion, in the same way that pineapple does. The juice is put up without any sugar, and the cans or bottles are sealed up while hot, just as we put up canned fruit. With the frosts we have just been having, I do not suppose grapes will be offered this year at the very low prices they were last; but when any kind of fruit becomes a drug in the market, I think this is one of the ways in which it may be utilized by canning up the fresh juices. Friend B. sells it at \$4.00 per dozen quart bottles, and the bottles are worth 50 cts. a dozen when empty. You may say this is rather expensive as a beverage; but it is not at all expensive if used as medicine; and if our various churches have not already inaugurated the custom of using unfermented grape juice, they had, in my opinion, better do so, using the pure juice of the grape as I have described. Friend B. does quite a business, I am informed, in furnishing this product for communion purposes.

A NEW PLAN OF RELIEF BY WORK.

The above is the title of a little pamphlet by the Sterling Pub. Co., 106 Fulton St., New York. It gives in detail the result of the experiment made last season in Detroit in letting the poor have the use, free of charge, of the unoccupied land in the city. The ground was plowed, harrowed, and marked, ready for planting, then divided up into little garden-patches, and the poor of the city who had no gardens of their own were given the privilege, and shown how, to raise potatoes and other similar crops. The result, which has been widely published, was astonishing. About 430 acres were thus fitted and divided off into quarter-acre lots. About 3000 applications were made for land; but they were able to provide for only about 945 families. Let me quote:

The result is, that about a thousand families were enabled to pass through the winter without having recourse to the poor-commission, and a large sum was thus saved to the tax-payers.

The estimated value of the crops produced was from \$12,000 to \$14,000; although many families, from dire want, were compelled to dig up for consumption certain portions of the potatoes before they had attained any size.

Poor people almost fought for a chance to get a piece of ground to till; and those who were successful used their best efforts to obtain a full crop. Applications for land for 1896 were made by a great many of them. The loss by theft was practically nothing—certainly not more than that of the average market-gardener.

Well, friends, I confess this is good news—to me at least. That little book of mine, "What to Do," you may recollect, is right along in this line; and as the area of ground is small for each family, the ultimate result—that is, where people have grace and persistence to follow it up—will be "high-pressure gardening." Other cities are rapidly taking up the project; and just think of the general effect on the appearance of things. Why, I have again and again, in passing different cities in our land, felt pained to see these vacant lots—may be almost right in the heart of the city, some of them—growing great useless weeds; and where land is so high-priced and valuable, the contrast is really painful between such a lot and one nicely improved, no matter whether it is occupied by a store, dwelling, or some sort of factory, or a greenhouse. May God be praised for this new un-

dertaking. The city furnishes the *land*, you see, and the deserving poor people furnish the *labor*, and have the crop.

TOBACCO IN COLLEGES.

The effects of tobacco are beginning to be recognized by our schools and colleges. See the following:

Quite a sensation has been stirred in college circles at Delaware by the announcement of Dr. James W. Bashford, president of the Ohio Wesleyan University, that the question of the use of tobacco by the students had been carefully considered by the officers of the college, and concerning it he said: "Our faculty, after making a careful study of the matter, have decided to ask all our students to discontinue the use of tobacco, beginning next fall; and if any tobacco users come we shall have to dissolve partnership." This is a very radical step, as it is said that nearly 30 per cent of the students use tobacco. This new rule may affect the attendance next year.—*Ashtand Times*.

It is five years to-day since I read your article in GLEANINGS on the tobacco habit, and resolved to try to give up the weed. I am glad to say five years is gone, and *no tobacco* used by me since. H. C. HEDGES.

Lumberport, W. Va., Mar. 6.

I agree to quit the use of tobacco, and hope to get my pay in the shape of a smoker; and I will pay for it if I allow myself to be dominated by this vice again. P. E. AVILO.

Peñoles, Mexico.

Kind Words From Our Customers.

Your paper is a grand help on spiritual life to me, and is worth far more, as bee culture here is an uncertain calling. S. S. FETHEROLF, Palestine, O.

Thanks for the exposition of Oxydonor, as we have an agent here getting in his work on the despairing sick and aged invalids.

Lampasas, Tex.

R. A. HARDY.

MIXED JOURNALISM.

I wish to thank you for your articles on high-pressure gardening in GLEANINGS. They have proved a great help to me. To the teachings of yourself and Mr. Terry I owe much of my success in combining apiculture and potato-farming.

River Sioux, Ia., Mar. 11.

F. M. CRANE.

My wife says if GLEANINGS cost twice as much, and contained only A. I. Root's talks, she would take it. She, as well as myself, is somewhat partial to Rambler, as we have relatives and friends in and around Colton and San Bernardino. Somehow we both have "leanings" toward the Medina people, and can not get along and keep house and bees without GLEANINGS. The more men of A. I. Root's stamp there are in the world, the better. I wish every one could read his Talks. I can extract more solid comfort from one of his Talks than from any spread-eagle sermon I ever heard.

St. Joseph, Mich., Feb. 11.

E. A. MALLORY.

The raspberry-plant came to hand promptly, and such a nice plant—twice as large as I expected! It is a pleasure to send to you for any thing. I am sure to get as much as or more than I expect. Thanks for past favors.

N. A. E. ELLIS.

Rail, Mo., May 7.

[Now, friend E., don't be too sanguine. We happened to hit you just right on the raspberry-plant, and, in fact, that is the way we like to do business. But a great many times it is impossible to find the plants and other things to give our customers these happy surprises. Rich ground and plenty of care, however, go a great way toward doing it. Many thanks.—A. I. R.]

Still in the Lead!

Hilton's **White** **T Supers,**
Chaff **Polished** **Foundation,**
Hives, **Sections,** **Smokers,**
and every thing needed in the apiary.

Send for 1895 catalog.

GEO. E. HILTON, " " **Fremont, Mich.**

Please mention this paper.

HEADQUARTERS

For those large beautiful Golden Italians. One untested queen, 80c; 3 for \$2.00. One warranted queen, \$1.00; 3 for \$2.50. One tested, \$1.50; One select tested, \$2.00. Satisfaction guaranteed.

C. M. HICKS, Hicksville, Wash. Co., Md.

Dovetailed Hives.

Sections, Extractors, Smokers, and every thing a Bee-keeper wants. **Honest Goods at Close Honest Prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

Queens, Either 3 or 5 Banded.

After May 1st. 75c; 6 for \$4.25. Nuclei cheap. Also poultry eggs for hatching, 50c up. Send for catalogue. Send your orders now. Can please you.

CHAS. H. THIES, Steeleville, Ill.

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat - Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,

12tfdb Sole Manufacturers,
Sprout Brook, Montgomery Co., N. Y.

In responding to this advertisement mention GLEANINGS.



Control Your Swarms, Requeen, Etc.



Send 25c for samples of West's Patent Spiral wire Queen-Cell Protectors, and Pat. Spiral Queen Hatching and Introducing Cage, also best Bee-Escape, with circular explaining. Twelve Cell-protectors, 60c; 100, \$3. 12 cages, \$1; 100, \$5, by mail. Circular free. Address **N. D. WEST, Middleburgh, Scho. Co., N. Y.**

Sold also by all the leading supply-dealers.

In responding to this advertisement mention GLEANINGS.

OTTUMWA BEE-HIVE FACTORY.

Bee-keepers, look to your interests. Every thing in the line of bee-supplies constantly on hand. Price list free.

GREGORY BROS. & SON,
Ottumwa, Ia. South side.

Please mention this paper

Every Farmer

Ought to read the Rural New-Yorker.

(Published weekly.)

It is the business farmer's paper, and a most reliable authority on agricultural and horticultural subjects. Frauds and humbugs fear it. **ONLY \$1 A YEAR.** Send for sample copy to

THE RURAL NEW-YORKER, New York.

We have made arrangements so that we can send it and GLEANINGS for \$1.75 a year.

WM. A. SELSER, BREEDER Golden Italian Queens

For Business.

Wyncote, Pa. " " Near Philadelphia.



We can fill
Your Orders

for Dovetailed Hives, Sections, Foundation, etc., by Return Mail. Have A. I. Root Co.'s goods at Their Prices. Will save you freight, and get goods to you in a few days. Catalog free.

JNO. NEBEL & SON, High Hill, Mo.

"The Market Garden."

A Monthly Journal

For Market-Gardeners and Truckers.

50 Cents a Year. Sample Copy FREE.

THE MARKET GARDEN CO.,
Minneapolis, Minn.

In responding to this advertisement mention GLEANINGS.



That Tired Feeling

Caused by washing has been conquered by the Champion Washing-Machine. Can sit down to run it. Runs lighter and washes Cleaner and Faster than any machine on the market. Will sell at wholesale rates where we have no agent. Write for prices.

CHAMPION MFG. CO.,
Middletown, Pa.

In responding to this advertisement mention GLEANINGS.

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians**, the result of 16 years' careful breeding.

Dr. H. B. Lung, Harrodsburg, Ky., says: "I have had the pleasure of seeing many fine strains of bees, yet I have never seen such industrious, energetic bees. I must express my admiration for your success as a bee-propagator."

Warranted queens, \$1.00 each; 3 for \$2.50. Select warranted queens, \$1.20 each. Safe arrival and satisfaction guaranteed.

Those who have never dealt with me, I refer to A. I. Root, who has purchased of me 808 queens. Circular free.

J. P. MOORE, Morgan, Pendleton Co., Ky.

GOLDEN QUEENS

Bred for business. Untested, June, 65 cts each; 6 for \$3.50. Tested, \$1.00 each. Fine breeders, \$2.00 each extra. Select straight 5-banded breeding-queens, \$4.00 each. To all new customers one **GOLDEN QUEEN** for 50 cts. Satisfaction and safe arrival guaranteed.

E. A. SEELEY, Bloomer, Ark.
P. O. Money Order office, Lavaca, Ark.

7-20

BEGINNERS.

Beginners should have a copy of the Amateur Bee-keeper, a 70-page book by Prof. J. W. Rouse. Price 25 cents; if sent by mail, 28c. The little book and the Progressive Bee-keeper (a live progressive 28-page monthly journal) one year, 65c. Address any first-class dealer, or

LEAHY MFG. CO., HIGGINSVILLE, Mo.

In responding to this advertisement mention GLEANINGS.



CARLOAD SHIPMENTS.

Since our last report we have shipped a carload to Rocky Ford, Colo.; another to Joseph Nysewander, Des Moines, Ia.; a third car to F. A. Salisbury, Syracuse, N. Y.; and as we go to press we are loading the third car for Barteldes & Co., Denver, Colo.

LAWN-MOWERS.

It is not too late yet to invest in a lawn-mower to use in slicking up your front yard, and making the home grounds look neat and tidy. We call your attention to our line, and the unusually low prices, in our ad. on the third cover page of this number.

JAPANESE BUCKWHEAT.

We have a good stock of choice seed of Japanese buckwheat, and know where we can obtain more. Price, free on board cars here, bags included, 40 cts. per peck; 70c per $\frac{1}{2}$ bush.; \$1.20 per bush.; 2 bush., \$2.20; 10 bush., \$10.00; 40 bushels, f. o. b. Farragut, Pa., at 75 cts. per bush., bags included.

TYPE-WRITERS AT A BARGAIN.

Desiring to replace several of our Smith Premier type-writers by new ones of the same make, we offer for sale those now in use. They are all of the same age, and have been used here for only a little over two years, and work practically as well as when new. We will fit them all with new tympanis before sending them out, after which they will give the same impression as when new. The letters are not worn a particle. We will sell them for \$65.00 each, which is two-thirds of the first cost. Even with the constant use to which we subject them, we should expect them to work well for at least five years more; and for ordinary correspondence, nearly twice that. A new ribbon will be furnished with each. Sample work furnished on application, to intending buyers.

SPECIAL SECTIONS AT SPECIAL PRICES.

Our supply of old-stock sections is very nearly closed out. As there seemed to be no call for closed-top 7 to foot and $1\frac{1}{2}$, we have passed these under the cutter-head and made them open top and bottom, and we still have:

77,000	$4\frac{1}{2} \times 14 \times 1\frac{1}{2}$	open top and bottom, polished.
7,000	"	" x; to ft., open top and bottom.
3,000	"	" $x1\frac{1}{2}$ open top and bottom.
8,000	"	" $x1\frac{1}{2}$ open four sides.
12,000	"	" $x1\frac{1}{2}$ open four sides.
40,000	"	" $1\frac{1}{2}$ open top and bot'm, new cream.
20,000	"	" 2 open top and bottom, new cream.
20,000	"	" 2 open four sides, new cream.

Price, to close out, \$2.20 per 1000; 3000 for \$6.00; 5000 for \$9.00, or 10,000 for \$16.00. Special reduction in larger quantities, or to those who buy to sell again. We shall be glad to hear from any one who can use any of this stock. We desire to close it out before the season closes.

THE NEW BUSH LIMA BEANS.

We have made our bean-poles into kindling-wood, and never expect to want or use any more. The bush lima beans last season filled the bill so completely that the poles are ruled out, on our ranch at least. I believe the Burpee bush lima has given the best yield, as a rule; but the Kumerle is certainly the richest and most toothsome bean—in fact, I should place it at the head of all the bean family in delicacy and richness of flavor. We find we are likely to have quite a stock of these left over, and therefore we reduce the price as follows: $\frac{1}{2}$ pint, 10 cts.; pint, 18 cts.; quart, 30 cts.; $\frac{1}{2}$ peck, \$1.00. If wanted by mail, add 8 cts. per pint or 15 cts. per quart for postage. Remember, this is the bean for which I paid its weight in gold for a handful to plant, only a few years ago—\$75, in fact, for a small handful of beans. Now you can have half a peck for a dollar.

STOWELL'S EVERGREEN SWEET CORN.

Although this is not in our catalog, we are having so much demand for it we have placed it in stock, and can furnish it till further notice at 10 cts. per

quart, 75 cts. per peck, or \$2.75 per bushel. If wanted by mail, add 12 cts. per quart for postage. Our corn and beans have all been tested on our own grounds, and are now up and growing.

FIELD-PUMPKIN SEEDS, ETC.

There seems to be a general complaint that pumpkin seeds raised last year do not grow well. We can furnish you a good article for 25 cts. per lb.; small sugar pumpkins, especially for pies, 40 cts. If wanted by mail, add 9 cts. extra for postage and packing. Either kind can be pushed in among other crops that come off early, giving the vines the entire ground as soon as the early crop is out of the way. Give them good rich ground and plenty of sunshine, and you will have pumpkins in such plenty that the children can run all over the field, skipping from one great yellow fruit to the other, without touching the ground at all. Now is the time to put in the seed; and if you are too busy to attend to it, have the children push in the seed with their fingers, say every ten or twelve feet. Tell them to read this, and may be they will have more enthusiasm in doing the work good.

The month of June is the very best time to plant all kinds of beans. We have planted two acres of the Best of All green snap bean, and still have some seed left for any one who may want to help us provide seed beans for the friends down in Florida. For prices, see our last issue.

The first of June is also the best time to sow the seed for late cabbage. We can furnish Excelsior Flat Dutch, 15 cts. per oz.; \$1.50 per lb.

Our best cauliflowers are the very early or the very late. We seldom get nice heads in hot weather. Now is the time to sow the seed for the late crop, and we have nothing better than the Snowball.

Finally, the first of June is time enough to plant almost any thing in the whole seed-catalog, and still get a good crop if the weather is favorable. At the high prices that seed peas have been quoted for the last two or three years, there is money in raising them. If your seed has been treated with bisulphide of carbon, so that it contains no live bugs, you can grow a crop free of bugs, as a rule, in almost any locality. After sowing the seed, however, you want to keep watch of your peas; and just as soon as a single buggy pea is to be seen, treat your whole lot of seed until every bug, inside and outside, is as dead as a doornail. Just look at what seed peas are quoted in the seed-catalogs, our own among the rest—four or five dollars a bushel; and by taking pains you can raise just as good peas as anybody. Why in the world should we pay such prices for either American Wonder, Alaska, Premium Gem, or Stratagem?

FOUNTAIN SPRAYERS.



The time for applying poison to potato-vines and other small plants and shrubs is at hand, and you can use nothing more convenient for the purpose than a fountain knapsack sprayer. We can furnish the Myers, shown above, at \$3.25; 5 for \$13.00. We have also the Lenox, which works on the same principle, at \$3.00 each; 5 for \$12.00. We still have a good supply of barrel and bucket spray-pumps, ready to ship on short notice. See previous numbers for description and prices, or send for circular.

BEESWAX DECLINING.

The slips sent out in our catalogs this spring, headed "Beeswax Wanted," seem to have started the flood-tide our way, for it is simply a caution the way the wax has been coming to us the past two months. Although we use from 3 to 5 tons a month, it has been coming about as fast as we have used it, and we still have most of the stock bought in March, which we expected to have used up the past month. We don't mind having a good stock of wax, but dislike to lay in so much on a falling market. We decline the price we will pay, to 25c cash, 28c trade, with prospect of further decline in the near future.

SEND ON YOUR ORDERS.

As we go to press we have all orders filled, and are able to take a vacation Memorial Day with a clear conscience. There are, of course, a few received too late to get off on the last trains leaving, and no freight trains run on legal holidays. If you want any thing in a hurry which we can supply, let us hear from you and we will show you how promptly we can get the goods started. The crowd, when orders were delayed a few days, lasted only a short time; and it is doubtless due to the recent cold weather and frosts, and the consequent dropping-off of orders, as well as to our extra efforts, that we were able to catch up again.

WIRE NETTING; SHORT ROLLS AT FULL-ROLL PRICES OR LESS.

We have the following lot of wire netting of various sizes and widths in short or odd-length rolls. Very often a person wants a piece and can not buy it cut from a full roll without paying double price. You may be able to find in this list just what you need, or very near it. Even if you want more than a full roll you will find the prices at which we offer these to be in most cases less than full-roll price.

Of 2-inch mesh No. 19 wire, we have the following remnants and short rolls at $\frac{1}{2}$ c per square foot. The figures at the left give the width in inches, and the other figures give length of each piece in feet. Multiply this by the width in feet, then take one-half of the result to find the price of each piece.

18 | 138.
30 | 140, 144, 146, 148.
36 | 49 83, 83, 86, 90, 90, 92, 96, 96, 99, 100, 102, 116, 116, 118, 122, 124, 125,
129, 142.
48 | 83, 119, 122, 124, 125, 131, 134, 138, 138, 138, 140, 140, 143, 144, 144, 145,
145, 146.
54 | 52, 72, 88, 143.
60 | 120, 123, 127.
72 | 85, 85, 87, 100, 119, 123, 130, 138, 142, 144, 144.

Of 2-inch No. 20 we have the following pieces at one-half of a cent per square foot, less 10 per cent. Arrive at the price in precisely the same way as above, and take 10 per cent off.

30 | 129.
36 | 81, 88, 91, 102, 102, 103, 103, 109, 122, 126, 126, 128, 128, 136, 140, 141.
48 | 128, 144.
54 | 145.
60 | 139, 144.
72 | 139.

In the following list we give first the size of mesh; next, the number of wire; next, the width in inches; then the length in feet, and, finally, the price of the whole piece, so you will have no figuring to do.

2 in., No. 15, 18 in. x 75 ft., at 1.60; 18 in. x 74 ft. at \$1.55.
2 in., No. 15, 18 in. x 55 ft., at 1.20; 54 in. x 122 ft. at \$8.00.
2 in., No. 15, 60 in. x 20 ft., at 1.50; 72 in. x 36 ft. at \$3.00.
2 in., No. 15, 72 in. x 33 ft., at 3.00.
2 in., No. 16, 72 in. x 36 ft., at 2.3; 72 in. x 55 ft. at \$3.60.
2 in., No. 16, 72 in. x 55 ft. at 3.60.
2 in., No. 14, 72 in. x 70 ft., at 5.25; 72 in. x 100 ft., at \$7.50.
1½ in., No. 19, 3 ft. x 129 ft., at 3.55.
1½ in., No. 18, 4½ ft. x 118 ft., at 6.35.
1½ in., No. 19, 3½ ft. x 85 ft., at 2.00; 4 x 55 ft. a \$1.50.
4½ x 20 ft. at .60; 5 x 19 ft. at .65; 6 x 46 ft. at \$1.90.
1½ in., No. 18, 3 x 64 ft. at \$1.75.
1½ in., No. 16, 3 x 64 ft. at .35; 2½ x 70 ft. at \$3.00.
4 x 24 ft. at \$1.65; 6 x 102 ft. at \$6.10.

In lots of 5 pieces, any one or assorted kinds, deduct 5%; 10 pieces, 10%; 25 pieces or more, 15%. Better name a second or third choice, in case your first be gone. **The A. I. Root Co., Medina, O.**

MONEY-MAKERS

Are a strain of business Italians that winter in the cold North, and are ready for business, with a bushel of bees, when the flowers bloom. They are gentle and industrious. Queens warranted purely in June. Each, \$1.00; six, \$5.00; doz., \$9.00. Safe arrival and satisfaction guaranteed. Never had any disease.

Address **E. F. QUIGLEY, UNIONVILLE, MO.**

Best ~ Goods

At lowest prices are what we are all after. The *quality* of Cary's goods has never been questioned. His X X white thin foundation and polished one-piece sections are the finest on the market. His bees and queens are from the best strains, and reared and shipped in the way that long years of experience have shown to be the best.

He has the largest stock of **BEE-KEEPERS' SUPPLIES** in New England; and as to prices you have only to send for a catalog and compare them with those of other dealers.

To those living in the East, there is the still further consideration of low freight rates. Address

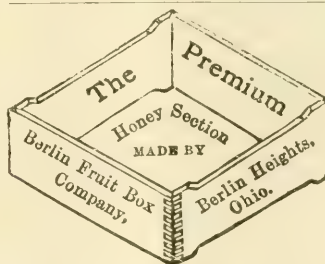
W. W. CARY,
COLRAIN, MASS.

In responding to this advertisement mention GLEANINGS.

If Tons of Honey,

Pleased Customers, and Increasing Trade is a criterion, then my queens are satisfactory. **Warranted** purely mated queens from 5-banded strain, 75c; six for \$4.00; dozen, \$7.50. Safe arrival and satisfaction guaranteed. Send for free circular.

J. B. CASE, Port Orange, Vol. Co., Fla.



Order your supplies early before the rush gets you. Send for our price list of Bee supplies and Fruit packages. Address

BERLIN FRUIT BOX CO.,
Berlin Heights,
Erie Co.,
Ohio.

NOTICE.



We have proven to our satisfaction that queens bred in the North produce bees that are **hardier** and **winter better** than those bred in the South. We make queen-rearing a specialty. We never saw foul brood or bee-paralysis. Send for our free descriptive price list of our Gray Carniolans and Golden Italians. Prices to suit the times.

F. A. LOCKHART & CO., Lake George, N. Y.

In responding to this advertisement mention GLEANINGS.

TAKE NOTICE!

BEFORE placing your orders for **SUPPLIES**, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. **PAGE & LYON MFG. CO.,**
New London, Wis.
8tdfb

Please mention GLEANINGS. 21-8db

Golden Queens From Texas.



My queens are bred for business, as well as for beauty and gentleness. Safe arrival and reasonable satisfaction guaranteed. Untested, \$1.00; tested, \$1.50. Write for price list.

5-16ei

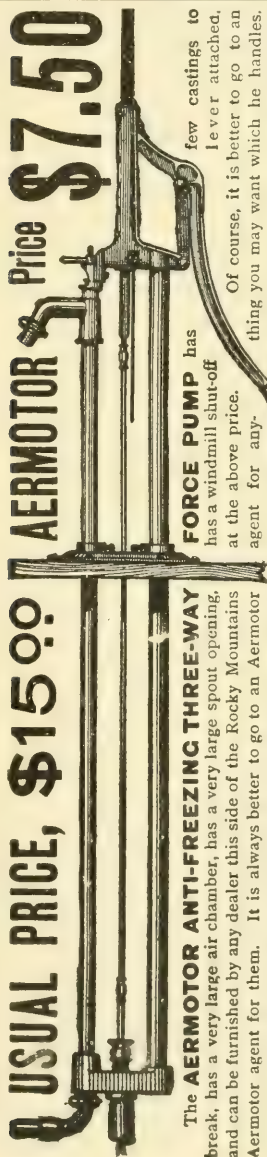
J. D. GIVENS, Lisbon, Texas. Box 3.

3=Banded **TESTED ITALIAN Queens,**
from my own imported queens, \$1.00 each.

Max Brauer, Beeville Bee Co., Tex.

Italian Bees for sale in good dovetailed bodies, with 8 L frames of brood; fine condition; \$4.00 a stand.

B. J. CROSS, Cherokee, Ala.



USUAL PRICE, \$15.00. AERMOTOR Price \$7.50

FORCE PUMP has a windmill shut-off at the above price. Of course, it is better to go to an agent for anything you may want which he handles, he is an Aermotor agent. It is doubtful if, times fellow. We furnish also a **SPECIAL AERMOTOR FORCE PUMP AT \$4.50, BETTER THAN USUALLY SOLD AT \$8 OR \$10.** Send for our Pump Catalogue. Buy nothing but an Aermotor Pump, and do not pay more than Aermotor prices for it. We protect the public. We furnish it good goods at low prices. We have established twenty branch houses in order that it may get goods cheaply and promptly. You consult your own interests by insisting on not only Aermotor prices but Aermotor goods at Aermotor prices. Be sure and see our offer next week of a \$40 Feed Cutter at \$10. **AERMOTOR CO., Chicago.**

According to this advertisement mention GLEANINGS.

Promptness is What Counts.

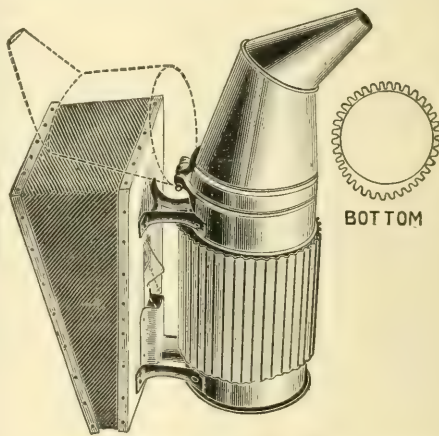
Honey-jars, Shipping-cases, and every thing that bee-keepers use. Root's Goods at Root's Prices, and the Best Shipping-point in the Country. Dealers in Honey and Beeswax. Catalog free.

WALTER S. POWDER,
162 Massachusetts Ave., Indianapolis, Ind.
Please mention this paper



Crane Smoker 1895 Pattern.

This excellent smoker was introduced some two years ago, since which time it has worked itself rapidly into popular favor.



Patented March 12, 1895.

Its Distinctive Feature is the Crane Valve, by which the full force of the bellows is secured without waste, and by which also smoke is prevented absolutely from going into the bellows.

The Legs are of Skeleton Malleable Iron, contracted at the feet so as to be out of the way of the fingers in handling, and are secured to the bellows by bolts instead of screws.

The Shield is of Light Corrugated Tin, and bags next to the bellows, thus giving ample protection from heat.

The Cone Top easily tilts back for replenishing the smoker, and is secured by a malleable-iron hinge, the working parts of which are milled so as to insure accurate adjustment to the stove or cup.

As to Fuel, it will burn any thing, including Soft Coal, Stovewood, Planer-shavings; and it makes no difference how much the latter may be crammed down in the cup, there will be the same strong blast as before.

Price, 3½-inch barrel, \$1.85, post-paid; or \$1.50 by fgt. or exp.

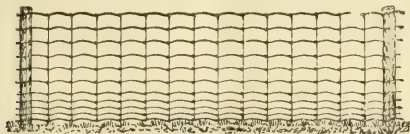
The A. I. Root Company,
Medina, Ohio.

H·O·N·E·Y!

If we would be successful in the production of honey it is of vital importance that our queens be first class. After an extended experience with the different races of bees brought to this country, I am led to believe, all things considered, that these direct from Italy have never been improved upon. Large yellow prolific queens from imported mothers, mated to drones of imported stock from a different source, securing a direct cross. Untested, ready May 25, 75c; 6, \$4.25; 12 for \$8.00. Select untested, \$1.00. No disease.

L. H. ROBEY, Worthington, W. Va.

In responding to this advertisement mention GLEANINGS

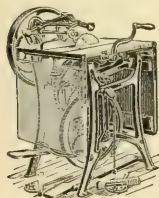


**FIRST on the FARM,
FIRST on the RAILROAD,
FIRST around PARKS and CEMETERIES.**

Not our word for it, but that of our regular customers, **first-class farmers**, who pride themselves on having the **best** and whose motto is "what is worth doing at all is worth doing well," and **first-class** railroads that seek **protection for right of way**, rather than "anything to comply with the law." The Park Commissioners, Cemetery Directors and owners of Game Parks who have tested it will vote for it **first, last and all the time.**

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

In responding to this advertisement mention GLEANINGS



ONE MAN WITH THE UNION COMBINATION SAW
Can do the work of four men using hand tools, in Ripping, Cutting off, Mitering, Rabbeting, Grooving, Gaining, Dadoing, Edging-up, Jointing Stuff, etc Full Line of Foot and Hand Power Machinery. Sold on Trial. Catalog Free. 1-24ci

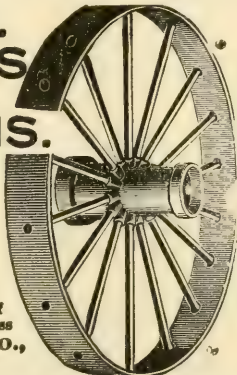
**SENECA FALLS MFG. CO.,
44 Water St., Seneca Falls, N.Y.**

In responding to this advertisement mention GLEANINGS

METAL WHEELS for your WAGONS.

Any size you want, 20 to 56 in high. Tires 1 to 8 in wide—hubs to fit any axle. Saves cost many times in a season to have set of low wheels to fit your wagon for hauling grain, fodder, manure, logs, &c. No resetting of tires. Catlg free. Address

**EMPIRE MFG. CO.,
Quincy, Ill.**



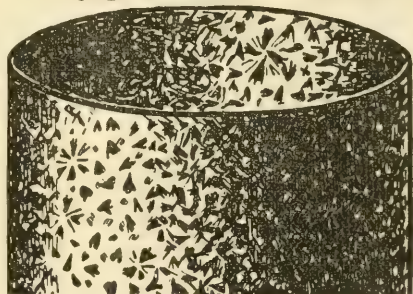
In responding to this advertisement mention GLEANINGS

MUTH'S HONEY-EXTRACTOR, SQUARE GLASS HONEY-JARS.

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "Practical Hints" will be mailed for 10c in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.

STEEL TANKS
We furnish steel tanks with covers, all galvanized after completion, in nests of ten, 8 to 12 feet high and 30 to 36 inches in diameter, at 2½c. per gallon. They do not rust, shrink, leak, give taste to water, nor allow foreign substances to get in. They can be put in garret or barn and thus are protected from freezing. They take no setting up, are cheaper than wood. Tank substructures of all sizes made to order. Send for price list and designs for substructure and ornamental water supply.
**AERMOTOR CO.
CHICAGO.**
2½ CTS PER GAL



Did you ever stop to think how completely the Aermotor Co. made the modern windmill business? How it has monopolized this entire line of manufacture because of its ideas, inventions, designs, qualities and prices, or forced others to be literal and servile imitators? Witness the steel wheel, the back geared pump, the high geared power mill, the steel towers, fixed and tilting, the galvanizing of work after completion, the grinder centrifugal feed, the improved irrigating and other pumps, the all steel pole saw—one of the most popular things we ever put out—the steel storage and storage tanks. Everything we have touched we have bettered and cheapened. It is the thing we have delighted in and it has paid. We have established a score of branch houses, so as to have all these goods near those who want them. The Aermotor Co. has but one more ambition. It wants to build and fill one more new building. It has 2 acres of land at its present location unoccupied by buildings. It expects to commence in June to cover that 2 acres with a single building, 7 stories high. This will give it 14 more acres of floor space. Then when the public demand requires more goods than can be produced with this added space, it will refuse to extend further, or make any effort. It will have done its share to supply that demand. It will then turn away all new comers. UNTIL THAT TIME IT EXPECTS TO CONTINUE TO SUPPLY THE WORLD WITH THE GREATER PART OF ITS WIND WHEELS, TOWERS, GRINDERS, FEED CUTTERS, PUMPS, STEEL FRAME BUZZ SAWS, STEEL STORAGE AND STOCK TANKS, STEEL SUBSTRUCTURES, ETC., ETC., GALVANIZED AFTER COMPLETION. IT WILL CONTINUE TO DEAL MOST LIBERALLY WITH THE PUBLIC, FURNISH REPAIRS AT A LOW PRICE, AND BE THE GREAT MODEL SQUARE-DEALING WIND POWER AND WATER SUPPLY HOUSE OF THE WORLD. **AERMOTOR CO., CHICAGO.**

BEE-KEEPERS' SUPPLIES FOR 1895.

Such as Dovetailed Hives, Sections, Comb Foundation, Extractors, and every thing else used by a bee-keeper. All late improved goods. Immense stock. Goods sold at wholesale and retail. Write for our

DISCOUNTS FOR EARLY ORDERS.

Alsike clover and Japanese buckwheat furnished at lowest market price.

Address **JOSEPH NYSEWANDER, Des Moines, Iowa.**

In writing advertisers please mention this paper

HONEY COLUMN.

CITY MARKETS.

CLEVELAND.—*Honey.*—The honey market is not very brisk. No. 1 white 1-lb. sections are selling at 12; No. 2, 10. Extracted, amber, 5@6; white, 7@8. Beeswax, 26. Present stock cleaning up; no receipts to speak of.
June 8. WILLIAMS BROS.,
80 & 82 Broadway, Cleveland, O.

CINCINNATI.—*Honey.*—Demand is slow for comb honey at 12@16 for best white. There is a fair demand for extracted honey at 4@7. Beeswax is in good demand at 25@31 for good to choice yellow.
June 8. CHAS. F. MUTH & SON,
Cincinnati, O.

KANSAS CITY.—*Honey.*—Demand light, supply light. We quote No. 1 white comb, 13@14; No. 2, 12@13; No. 1 amber, 11@12; No. 2, 8@10. Extracted, white, 7; amber, 5@6. Beeswax, 22.
June 10. C. C. CLEMONS & Co.,
Kansas City, Mo.

BUFFALO.—*Honey.*—The honey market is exceedingly quiet. Fancy moves slowly at 12@13; choice, 10@11; buckwheat and commoner grades are moving at 7@8. Beeswax in light supply, and firm at 28@30. Extracted dull, and very little doing in honey at present.
June 8. BATTERSON & Co.,
Buffalo, N. Y.

DETROIT.—*Honey.*—Best white honey held at 13@14; few sales and little in stock. Dark grades dull at 10@11; Extracted, 6@7. Beeswax, 27@28; supply good.
June 9. M. H. HUNT,
Bell Branch, Mich.

CHICAGO.—*Honey.*—There is very little honey selling now, and prices are nominal. Best grades of white comb, 14; dark, 8@10; extracted, 5@7, according to quality, flavor, and package. Beeswax finds ready sale at 28@31.
June 8. R. A. BURNETT & Co.,
163 So. Water St., Chicago, Ill.

KANSAS CITY.—*Honey.*—The stock of comb honey is about all sold; very little on the market. One-lb. comb, white, 12@13; amber, 10@11; extracted, 6@6½; dark, 4½@5. Beeswax, 25.
June 10. HAMBLIN & BEARSS,
Kansas City, Mo.

MILWAUKEE.—*Honey.*—This market at present is very dull on all kinds and qualities, and values are almost nominal. The stock of section honey is fair for the season, and generally of good quality. Extracted stock small. We can quote choice 1-lb. sections, 14@15; good, 12@13; dark, 10@12. Extracted, white, in kegs and barrels, 7@7½; in pails, 7¼@8½; dark, in kegs and barrels, 4@5. Beeswax, 26@28.
June 4. A. V. BISHOP & Co.,
Milwaukee, Wis.

MINNEAPOLIS.—*Honey.*—Honey is ranging about as follows: Fancy white, 18; No. 1 white, 16; fancy amber, 15; No. 1 amber, 13; fancy dark, 12; No. 1 dark, 11. Extracted, white, 7@8; amber, 6@6½; dark, 5. Can you advise us where we can buy some strictly fancy white honey? We are about cleaned up on that grade of goods. Dark honey is very slow sale.
June 5. J. A. SHEA & Co.,
Minneapolis, Minn.

DENVER.—*Honey.*—Our market is well cleaned up in fancy comb honey in 1-lb. sections, still the prices remain about the same, as the market is supplied with old and granulated stock. No. 1 comb in 1-lb. sections, 10@11; No. 2 has no demand. Extracted, No. 1 white, in 6-lb. cans, 2 in a box, 6c. There is a better demand for extracted honey at this season, as the comb honey is nearly all granulated. Our dry climate is the cause of so much granulated honey in our market.
June 11. R. K. & J. C. FRISBEE,
Denver, Col.

PHILADELPHIA.—*Honey.*—New crop of honey has commenced to arrive in the market, but there is very little call for it as yet. Some few sales of fine white-clover comb at 13@14. Extracted is selling at 5½@6. Beeswax is declining; selling at 27@29, according to quality.
June 11. WM. A. SELSER,
No. 10 Vine St., Philadelphia, Pa.

BOSTON.—*Honey.*—Our market on honey remains the same, with very light demand. Prices for comb, 14; extracted, 5@6.
June 10. E. E. BLAKE & Co.,
Boston, Mass.

FOR SALE.—600 lbs. of comb honey, in 1-lb. sections, in 24-lb. shipping-cases, at 12c per lb.
EDW. SMITH, Carpenter, Madison Co., Ill.

BEE-KEEPERS.—We buy quantities best quality of comb and extracted honey. Let sample accompany price. We guarantee prompt pay, and give The A. I. Root Co. as reference.

J. A. BUCHANAN & SONS, Holliday's Cove, W. Va.

ALFALFA IN ARIZONA.—We will sell you alfalfa honey F. O. B. Phoenix at 4½c in 1000-lb. lots or more. Less than 1000 lbs. at 5c in five-gallon cans. Car lots a specialty.
J. P. IVY,
Secretary Bee-keepers' Association,
Phoenix, Maricopa Co., Arizona.

ALFALFA HONEY, very white, thick, and rich. Two 60-lb. cans at 7c. Same, partly from cleome (tinted), 6c. Samples, 8c.
OLIVER FOSTER, Las Animas, Col.

No. 1 extracted honey in 50-lb. pails at 7c per lb.—\$3.50.
J. B. MURRAY, Ada, O.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 1stfdb and Prompt.

ALL PRAISE THEM.
ITALIAN QUEENS

From the apiary of
W. H. LAWS, Lavaca, Ark., can't

BEAT for BEAUTY and BUSINESS.

The leading bee-keepers of the U. S. are my customers. Your choice—either Golden or Leather-colored.

Prices Reduced.—Fine breeders always on hand, \$2 to \$3; untested, 75c; 3 for \$2; tested, \$1; 6 for \$5.

W. H. LAWS, Lavaca, Ark.

☞ In responding to this advertisement mention GLEANINGS

Patents Pending



ON NEW PROCESS,
NEW MACHINES,
NEW PRODUCT,
IN MANUFACTURE OF

Comb Foundation.



RESULT: LOWEST
PRICES, BEST WORK,
SAMPLES AND PRICE
LIST FREE.
WAX WANTED.

W. J. Finch, Jr., Springfield, Ill.

Queens, Either 3 or 5 Banded.

After May 1st, 75c; 6 for \$4.25. Nuclei cheap. Also poultry eggs for hatching, 50c up. Send for catalogue. Send your orders now. Can please you.
CHAS. H. THIES, Steelville, Ill.

I Prevent Swarming



by de-queening, and sell or discard all of my queens every year. I now offer again all of my tested queens for 80 cts. each, 2 for \$1.50. Many of them are worth three times the money. A few mismated queens at 30 cts. each.

T. H. KLOER, Terre Haute, Ind.

☞ In responding to this advertisement mention GLEANINGS.

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CONVENTION NOTICES.

The Bee-keepers' Educational Society of Rhode Island will hold its next meeting on Friday, June 21, at 8:15 P.M., at No. 21 Custom house St. Mr. Samuel Cushman will read a paper on "The Relation of Bees to Fruit and Flowers." Mr. J. E. Pond is expected.
295 Globe St., Providence, R. I. W. G. GARTSIDE, Sec.

Golden Queens
From Texas.

My queens are bred for business, as well as for beauty and gentleness. Safe arrival and reasonable satisfaction guaranteed. Untested, 75c; tested, \$1.00.
Write for price list. 5-16ei

J. D. GIVENS, Lisbon, Texas. Box 3.

In responding to this advertisement mention GLEANING.

Why Not



Try one of Leininger Bros. HONEY MAKERS, either Imported or Golden Queens? June prices are as follows: Untested, 75c; 1/2 doz., \$1.00; tested, \$1.25. We guarantee satisfaction.

LEININGER BROS., Fort Jennings, O.

Please mention this paper.

FOR SALE.—JAPANESE BUCKWHEAT, 75 CTS. PER BUSHEL.
A. P. LAWRENCE,
HICKORY CORNERS, MICH.

W. O. Victor, of Wharton, Tex., took

45,000 Lbs. of Honey in 1894.

He offers Italian Queens—good, old-style honey-queens—untested, first order, to any address, at 50c each. Also bees in any quantity: 450 colonies to draw from. Root's goods constantly in stock. Prices to suit the times. Buy near home, and save freight.

ITALIAN BEES Ready in May. Queens, \$1.00.
AND QUEENS. Bees by the pound, \$1.00. One-frame nucleus with queen, \$2.00; two frames, \$2.50. Also Barred Plymouth Rock eggs for setting, \$1.00 per 15.
6-17ei MRS. A. A. SIMPSON, SWARTS, PA.

Look Here, Bee-keeper!

If you are in need of bee-supplies, write for catalog and price list. Every thing sold as cheap as the cheapest.

Kenton, Hardin Co., O. W. E. Smith.

A Tested Queen Free!



Pure Italians. To every one buying 1/2 doz. untested queens I will give a tested one free. Untested, 60c; tested, \$1.00; selected tested, \$1.50; breeders, \$3.00.

STEWART BROS., Sparta, Tenn.

In responding to this advertisement mention GLEANINGS.

Imported

Italian Queens, \$3.50 each. Tested, \$1 to \$1.50. Untested, 75 cts. each.
W. C. FRAZIER, Atlantic, Iowa.

Wants or Exchange Department.

WANTED.—To exchange Autoharp or Italian queens for trio of B. P. Rock or offers. Address
W. J. FORCHAND, Fort Deposit, Ala.

WANTED.—To exchange old breeding-queens which I can recommend, for old breeding-queens which you can recommend. Object, to secure new and desirable strains, and avoid the evils of in-breeding. J. F. MCINTYRE, Fillmore, Cal.

WANTED.—To exchange thrashing-machine, with bagger, run one season, for bee-hive machinery or offers. J. C. REDPATH, Kalamazoo, Mich.

WANTED.—To exchange 15 White Minorca eggs for an Italian queen or section boxes.
SARAH SHAW, Winthrop, N. Y.

WANTED.—To exchange fine pug dog (blooded), 2 years old, perfectly kind to children, for 1/2 doz. untested Italian queens. E. D. BARTON, East Hampton, Ct.

WANTED.—500 bushels of cherries and raspberries. Will pay highest market price, spot cash. Friends, let us hear from you. J. B. MURRAY, Ada, Ohio.

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample. J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 6 and 12 inch Root foundation mills for wax, honey, or offers. I. J. STRINGHAM, 105 Park Place, New York, N. Y.

WANTED.—To exchange golden queens for Pekin ducks, Embden geese, fancy poultry, buck-wheat. J. F. MICHAEL, Greenville, Darke Co., Ohio.

WANTED.—To exchange 26-in. planer, power scroll saw, all iron; tenoner, and mortiser, for portable sawmill, or other wood-working machinery. Will give a bargain for cash. GEO. RALL, Frenchville, Tremp. Co., Wis.

3=Banded TESTED ITALIAN Queens, from my own imported queens, \$1.00 each.
Max Brauer, Beeville Bee Co., Tex.

MONEY IN GERMAN HARE. WRITE FOR PRICES.
NOAH HERMAN, Congress, O.

500 BUSHELS TRIUMPH Seed Potatoes For Sale.

New crop ready to ship July 1st to 10th; \$1.50 per bushel; 2 bushels or over, 10 per cent off. Address

J. T. PENICK,

Williston,

Tenn.

FROM IMPORTED MOTHERS. I have got 50 fine, choice, select breeding Italian queens, \$1.25 each; also tested and untested by return mail. Send for free price list. L. E. EVANS, Onsted, Mich.

In writing advertisers, mention this paper.

Black and Hybrid Queens For Sale.

I have 25 mismatched Italian queens for sale at 30 cts. each, or 4 for \$1.00. A good share of their bees are yellow.

ALBERT HINES,
Box 532, Independence, Ia.

Tested Queens by Return Mail at \$1.00.

I am devoting my apiary largely to the rearing of queens, making a specialty of tested Italian queens at \$1.00 each or six for \$5.00. These queens are of this year's rearing, and have been kept just long enough to know that they are good layers and purely mated. For several weeks I have been filling orders *by return mail*, and I am keeping a large number of queens in nuclei for the express purpose of enabling me to fill orders promptly. More than six queens (tested) will be sold at 75 cts. each, but such orders must be sent with the understanding that, while they will be filled as promptly as possible, it may not be by return mail, which will be the case with six or a less number of queens. The *Review* and one queen for \$1.50.

W. Z. HUTCHINSON, Flint, Mich.

Five Assistant Bee-Editors

Please cut out this whole ad. and sign and mail it to—
56 Fifth Ave., Chicago, Ill.

Please send to me the AMERICAN BEE JOURNAL for 3 months (13 numbers). At the end of that time I will send \$1.00 for a year's subscription, or 25 cts. in case I decide to discontinue. You will please address me thus:

Name.....

Post-Office.....

State.....



Sample Copy Mailed Free!

WM. A. SELSER,
BREEDER
GOLDEN ITALIAN QUEENS FOR BUSINESS.

WYNCOTE, PA.

NEAR PHILADELPHIA.

Favor is
Deceitful,
Beauty is
Vain.

New York Queens.

The beautiful yellow bee is going. I have a strain of bees, hereafter I shall keep. It is the coming bee for our Northern climate for longevity, and perfect white-capped honey; hardy and prolific. Queens, \$1.00 each. Having two apiaries, can sell yellow Italians. Queens, \$1.00 each.

MRS. OLIVER COLE,
Sherburne, Chenango Co., N. Y.

World's Fair Medal

Awarded my *Foundation*. Send for *free samples*. Dealers write for wholesale prices. Root's new *Polished Sections* and other goods at his prices. *Free* Illustrated Price List of every thing needed in the apiary. **M. H. Hunt.**

Bell Branch, Mich.

One-piece Sections, Cheap!

In order to reduce stock, we offer No. 1 Cream Sections, 4x4x7 to foot, 1½, 1½, 1½, and 2 inch:

1000 for \$1.50,
5000 at 1.40 per M.,
10000 " 1.35 " "

We also offer No. 1 White Sections, 5½x6½x2, open on two 5½ sides:

1000 for \$2.50,
5000 at 2.35 per M.,
10000 " 2.25 " "

G. B. Lewis Co., Watertown, Wis.

Smokers,
Knives.



Send for circulars and prices to

T. F. Bingham,
Abronia,
Mich.

QUEENS. IMPORTED ITALIAN MOTHERS ONLY.

Untested, 55 cts.; doz., \$6. About 11 out of every 12 will make fine tested queens, and for gentleness and industry we defy the world to beat them. Safe delivery. Money-order office, Decatur. eiff
CLEVELAND BROS., Stamper, Newton Co., Miss.

NON-SWARMING and NON-STINGING.

June 1 shall commence to ship queens and bees from my famous yellow-banded strains. Queens, \$1.00 each. I never had a swarm of bees from one strain that has been in my apiary six years. No charge unless queens are satisfactory.

H. ALLEY, Wenham, Essex Co., Mass.

A Full Line of Popular SUPPLIES

Always on hand.

1 lb. sq. flint jars, \$5.00 a gross, sent from this city. Untested queens, now ready, 75 cts. After July 10th, 3-frame nuclei and Italian queen, \$2.50 Discount on quantities. Catalog free.

I. J. STRINGHAM,
105 Park Place, New York.

Dovetailed Hives.

Sections, Extractors, Smokers, and every thing a Bee-keeper wants. **Honest Goods at Close Honest Prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

In responding to these advertisements mention this paper.



Vol. XXIII.

JUNE 15, 1895.

No. 12.

STRAY STRAWS

FROM DR. C. C. MILLER.

IS FAILURE to be our doom another year? June 4 white clover is in full bloom, but bees are doing nothing.

PLEASE KEEP WATCH, and tell us whether a queen prefers to lay in new or old comb; also, which the bees prefer to store in.

"GLEANER" gathers items "Among the Bee-papers" for *A. B. J.*, and, as might be expected, he gleans a good many gleanings from GLEANINGS.

"DO DUCKS eat bees?" is a question asked in *British B. J.* I don't know; but at one time in this country the bees were charged with eating ducks.

ADULTERATION of foundation is so bad that Prof. Foucart complains in *Le Progres Apicole* that nowadays he finds foundation that sags at 77° to 88° F.

EX-PRES. ABBOTT "roasts" ex-Secretary F. Benton, in *A. B. J.*, for not publishing report of St. Joe convention, after accepting \$25 in payment for his services.

THE THERMOMETER did not vary from 58° all winter in the cellar of O. E. Douglass, and his bees came out in splendid condition. But the cellar was well ventilated.

IN CUBA, according to H. G. Osborn, in *American Bee-keeper*, there are places where the honey is squeezed out and thrown away, the wax only being worth saving.

A NUMBER of cases, carefully observed by F. Goecken, showed young queens to be fecundated at from 8 to 10 days old, the first egg being laid 3 days later.—*Centralblatt*.

IN EAST AFRICA, says R. Ludwig, in Gravenhorst's *Illustrierte Bienenzeitung*, bees are kept chiefly for the sake of making out of the honey an intoxicating drink of disgusting taste.

I DON'T FEEL left out in the cold with my cellar stove so much as I did, since I know so good a man as H. R. Boardman is with me. Artifi-

cial heat may be a bad thing, but natural cold is worse.

TO MARK A HIVE temporarily, green grass or weeds will do nicely. It practically takes itself away, for next day it is withered, but a stone or block might be taken for a fresh mark the next day.

QUEENLESS COLONIES are often the result of a bee-keeper's handling. A queen is sometimes taken off with the cover, and once I found a queen on the hat of my assistant—a clipped queen too.

REV. E. T. ABBOTT, in *A. B. J.*, quotes Herbert Smith as saying that "particular parts of the body may become temporarily inoculated against insect stings." I wonder whether the inoculation is only local.

WOOD-BASE FOUNDATION reminds me of the foundation with tin-foil base that came out with a flourish years ago. It was a nice thing, only the bees would none of it. What have they said about the wood base?

"BUCKWHEAT, north of the latitude of North Carolina, may be a good forage-plant; but south it is perfectly unreliable. It will secrete an abundance of nectar only when the atmosphere is cool and moist. This is a condition we can not well have in the South."—Dr. J. P. H. Brown, in *A. B. J.*

DR. BROWN relates in *A. B. J.* that he gave goldenrod credit for being a good honey-plant, as bees worked on it more or less all day long, but afterward found that the honey stored came from aster that commenced yielding each day toward noon, and he concludes that goldenrod is a poor yielder with him.

I WAS SCARED a little when I got before such a big lot of railroad men in Chicago, but I found them a pretty nice lot. They seem to have hearts as well as other people. If a bee-keeper can be allowed to judge, I should put down J. T. Ripley, Chairman of Western Classification Committee, as a real gentleman.

LYSOL may prove to be the drug for foul brood, in Gravenhorst's opinion. It is cheap, and is more like crude than refined carbolic acid, and in his experience crude carbolic acid

has proved good as preventive and cure, while the refined article has been unsatisfactory. He thinks perhaps the coal tar that is in the crude, and also in lysol, may be important.

APIFUGE. In *Le Progres Apicole*, E. J. Roland recommends cantharides, or Spanish flies, and carbolic acid. Dissolve the powder in the acid, apply it to the skin, greatly diluted, and the bees won't sting there. Put the mixture full strength on a sponge and use it in a smoker if you want to drive bees out of a hive.

THE GREATEST GOOD to the greatest number would make a law that owners of cider-mills and such things should screen them against the intrusion of bees. If I am prevented by law from putting poisoned honey on my own ground to kill my neighbor's bees, equally I should be prevented from killing them with a cider-mill.

IF I HAD KNOWN Ernest was going to be under the weather I'd have tried hard to knock him out on the T-super question before he recovered his usual vigor. Guess I must try to fire off the few shots I have left, anyhow. [I am getting a little out from "under the weather," so you had better look a "leedle oud."—Ed.]

WHO CAN TELL what makes combs turn black as they grow old? It doesn't seem reasonable to believe the bees' feet do the coloring. [We know that bees go into the hive with dirty feet; and we know, too, that the cocoons and the deposits left from brood-rearing seem to have a darkening effect upon newly built combs along the line where the brood was. Is it not probable that both causes contribute toward the darkening you speak of?—Ed.]

"THE NORTH AMERICAN convention this year has received a special grant of \$100 from the Ontario Legislature, to defray the expenses at Toronto," says the *A. B. J.* Say; do you Canucks mean to own the convention? and will you reincorporate it? Joking aside, that's a grand stroke. [Yes, indeed that was a grand stroke; but our country is so large I am afraid we could not get similar favors at its hands—at least, not at present. I anticipate that the next North American will be the best in the history of the association. Those Canucks—beg pardon, Canadians—are hustlers in convention matters.—Ed.]

YOU'RE 'WAY OFF in thinking Stray Straws for June 1 are reposing in my coat-tails. My wife has searched my pockets thoroughly; and when a woman can't find anything in a man's pockets you may be sure there isn't any thing there. "Where are they, then?" I don't know. [I knew that you *once* carried Stray Straws in your pocket, and it was only when we punched you up just in time that we discovered their whereabouts. But you were then able to get them to us in time for the journal, so as not to break the chain. Yes, you are right. When a

woman can't find a thing in a man's pocket, no one can—not even the user of said pockets himself.—Ed.]

WILL AS MUCH BROOD be produced in a two-story hive as if the combs are all in one story? is one of the conundrums in *A. B. J.* Opinions are pretty well divided, with some preponderance in favor of the single story; but most of the repliers seem not to answer from experience. [I have noticed sometimes that the repliers, when we had a similar department in our own journal, frequently gave an off-hand opinion, and not one based on experience. At the risk of doing something nearly as bad myself, I will say that, from what little experience I have had, bees breed better all in one story than in two separate ones.—Ed].



FEEDERS.

PROPERLY AND IMPROPERLY CONSTRUCTED;
THE LOSS INCURRED FROM POOR FEEDERS.

By H. R. Boardman.

Would bee-keepers be benefited by my experience with feeders if I should give it, or would they go all over the ground for themselves? is a question I have asked myself more than once. Although I am satisfied that not all will be disposed to accept my notions, some seed may fall on good ground.

Success in feeding depends almost wholly upon the feeders used. A large amount of the feeding done, even by quite practical bee-men, results only in injury to the bees, instead of benefit, leaving out of the account the cost. This is not a very encouraging compliment, I will admit; but it is too true. Feeders must be so constructed that the bees can not possibly get daubed with the feed. You may say this is easy enough. I once thought so too; but it is not so easy a thing to accomplish.

The most common kinds of feeders are those with floats or slots. Take any of this class of feeders, or even combs filled with feed, which would seem, certainly in the latter case at least, to meet the requirements of the bees, and watch them in their mad scramble to get each a share. At first, when only a few are feeding, they poise themselves daintily and sip leisurely and carefully as though their own fine plumes and feathers were their sole care. Soon they gather faster; and as their numbers increase they begin to hurry and jostle against and run over each other. Still they gather until they are piled up on each other in a wild, struggling, excited mass, which is not truly represented by any thing except the board of trade of some great city.

Now, those at the bottom, which were at first

so careful and dainty of themselves, are pressed and crushed down into the feed; and as each bee makes its escape up through the struggling mass with its well-earned load of sweets, it wipes its feet and wings and body off upon its neighbor's fine clothes, and they in turn rub it off upon others, and this process is kept up until the whole mass becomes smeared and dauby.

What then? As if ashamed to be seen by their friends at home in this deplorable plight, they go out and alight on a twig or leaf, or on the grass or fence, and commence scraping off the precious sweet they were so eager to get into a few moments before, and wipe it upon any thing and every thing at hand. The loss of the feed thus wasted by being scattered around in almost imperceptible particles is a very serious loss to the bee-keeper when considered in the aggregate.

Nor is this the only serious part of the business. The whole apiary is thrown into a bedlam of commotion by the feed that has been so recklessly and profusely exposed by the daubed bees, and this is the explanation of how bees are so commonly excited to robbing and pilfering by feeding.

In my search after a feeder I have tried many—very many—of this class, and I could furnish now a rare collection of samples that have been consigned to the rubbish-gallery and to oblivion, that once were objects of great expectation. I had high hopes at one time in regard to open-air feeding, and I constructed an atmospheric feeder by inverting a can of feed on a slotted board. This worked admirably; but after feeding a few barrels of sugar in this way I abandoned the idea of open-air feeding, and used the feeders only for water in the dry part of the season. The objection to open-air feeding, according to my experience, was, the excitement caused too much waste of energy to make it profitable. The strong colonies, that had the least need of feed, got the lion's share. But the principle of this feeder I did not abandon. It became the stepping-stone and led to the atmospheric entrance-feeder, which has been already described and illustrated in this journal by the editor, and which is the only one I have ever been entirely satisfied with. In regard to it I will add to the brief description already given a few more words in detail.

I use a special wide-mouthed can holding two quarts, and not a common fruit-can, as described. I would not recommend any thing smaller. It would involve more labor in feeding. I have found these small enough. In using these feeders no feed need be exposed, either by the bees or the bee-keeper, to attract robbers. The feed is in sight, and the bee-keeper can see at a glance just what each colony is doing, and know just when the feed is out, without any examination. The feed is perfectly protected, and no harm can come to it from storms, even if it remains unused indefinitely. They are as near

being robber-proof as any feeder can be made. They are always in working order, but will not work without the assistance of the bees, even if left on all summer. Last summer I was feeding at one time 145 colonies in my home yard, and 60 more at my out-apiary.

HOW IT WAS DONE.

The cans were filled in the bee-house, from a tank, by a faucet, the caps adjusted, and placed in crates holding 12 to 14 cans. These were placed on a wheelbarrow, when ready to feed, two crates at a load, and wheeled out into the yard, and distributed by placing one on top of each hive. When all are thus distributed I pass rapidly along and invert each can in the feed-chamber, which has been previously adjusted to the hive. The bees are protected from injury in this chamber by an ample bee-space below the can when adjusted. I have filled these cans at all times, whenever they became empty, but prefer feeding at evening.

In feeding my out-apiary I took a sufficient number of these cases of filled feeders into my spring bee-wagon and drove to the apiary, with no stopping or spilling; thus the work of filling was all done at the bee-house at home, where the feed was prepared.

I prepare the feed by dissolving granulated sugar in water, nearly equal parts of each. I use hot water, but cold water will do, I am sure. Sugar syrup needs no doctoring for feed, excepting what the bees do themselves.

East Townsend, O.

[There are many things in favor of an entrance feeder, and such feeders would have been used more largely in the past but for the fact that none have been constructed hitherto but that would more or less invite the attention of robbers. But from what I saw in Mr. Boardman's yard during the robbing season last year, I am firmly of the opinion that he has solved the problem. Furthermore, his feeder may be used as a percolator, if desired, I think. Indeed, he almost admits as much when he says the sugar and water may be mixed half and half, the water cold; and even if the sugar did not all dissolve, more water could be put in at the next feed, and the bees would thus take care of the whole.—ED.]

WAX.

ADULTERATION, AND HOW TO DETECT IT.

By Karl Rudolph Matthey.

The adulteration of wax is due mostly to its high price; and this is done as well with the natural yellow wax as with the bleached product. This adulteration is effected either by means of other fats such as tallow and stearine, and sebatic acid, or with vegetable fats and various kinds of vegetable wax; and lately with refined ozokerite (mineral wax, earth wax, or ceresin), and then rendered hard with certain solid substances. One may therefore safely conclude that adulteration of less than 30 or 40 per cent is seldom or never met, and some with

40 or 50 per cent, and some even very much more. In buying wax, therefore, it is necessary to be on one's guard; and it is always to be recommended that the specific gravity and the melting-point of wax be carefully determined when testing the quality of it.

The following is a test to determine whether foundation is made of pure wax. When, in making foundation, a mixture of beeswax and ceresin is encountered, the detection of the adulteration is a very simple matter—namely, by bleaching. As ceresin can not be bleached by the sun's rays, but must be bleached by the use of chemicals, foundation to which ceresin has been added will remain more or less of a yellow color when exposed to the light of the sun; while cells made of pure beeswax, if hung in the full light of the sun for a few days, and occasionally sprinkled with water, will become perfectly white.

ANOTHER TEST.

Melt a small piece of foundation in a vessel, being very careful not to burn it. At the same time, take a few tablespoonfuls of water and add thereto a little soda. Pour the melted wax into the soda water. After the mixture has been stirred for a while the wax will become perfectly soapy; if, however, ceresin was in the wax, the mixture does not become soapy, but swims on the surface like an oily mass.

It has been proven that many makers of foundation do not use the required amount of pure wax, but adulterate it with one-half or even two-thirds of ceresin*.

Material and shape must have especial attention in making foundation. In making it, only absolutely pure wax should be used. Any admixture of foreign substances debases the product. For the bee-keeper it is also of the greatest moment to be able to test the purity of his foundation before putting it into the hives. The most satisfactory conclusions in this matter give the specific gravity of pure beeswax as .966, and the melting-point at 143 to 146°. All adulterants, such as stearine, suet, ceresin, paraffine, mineral wax, spermaceti, etc., differ from each other in these two respects. Make a mixture of water and alcohol, of such density as will permit pure beeswax to float—that is, so it will not touch the bottom of the vessel nor yet come to the surface. Into this drop a piece of the foundation to be tested. This must maintain itself in the mixture at the same height the wax does.

Wax is found varying in color from white to black; and to the same degree the odor varies also, according to the plant from which the honey was mostly derived; hence when a bee-keeper compares the color and odor of Turkish, Indian, African, and other kinds of wax, with his own, he will nearly always make a mistake.

That foundation made of pure wax can be

stretched but slightly (if any) is entirely false. Pure wax expands in a warm temperature very noticeably. The resistance which wax offers to a direct pull, at the same temperature, varies within very narrow limits; hence it does not depend altogether on the country the wax came from, but on the season of the year, and even on the source from which it comes. It would take too long for one to examine all of its peculiarities. There are different kinds of entirely pure wax which would be quite unfit for foundation, as they lack the necessary toughness. Certain it is, that foundation of pure wax, whatever the color and smell may be, is always worked out by the bees willingly and rapidly.

WHAT IS CERESIN?

I take my answer from a pamphlet written by Fried. Thalmann, entitled "Fats and Oils."

"Under the name of earth wax, or ceresin, there has been put on the market within a short time, in large quantities, a product which has received the name of wax on account of certain physical peculiarities which it has in common with other kinds of wax. Earth wax is, however, a mineral substance, and is related to petroleum. Good clean mineral wax is easily mistaken for beeswax, and actually forms a large part of the 'wax' of which candles are made, and sometimes the entire part. When the price of beeswax is much higher than that of mineral wax, it is a gross deception to call a mixture of the two by the name of 'wax;' and this fraud can be detected only by careful experiment, determination of the melting-point, the specific gravity, and other peculiarities."

CERESIN FOUNDATION.

I reproduce the following, simply to show that foundation made from ceresin is publicly sold in Germany:

The undersigned firm offer ceresin foundation in their price list, together with that made from pure wax, on the following grounds:

1. The amount of beeswax produced, when compared with that of honey, is very insignificant, being scarcely 5 per cent of the latter.

2. The cheaper foundation made of ceresin, whether the extractor be used or not, and be the honey harvest never so good, is decidedly conducive to an increase in the net amount of honey produced as compared with the use of foundation made of pure beeswax.

3. The price of beeswax must fall more and more—that is, come nearer to that of ceresin, and that is only a question of time—or else the use of ceresin and other kinds of wax will become more and more common. But if it does become cheaper, then the use of ceresin for foundation will be discontinued.

4. No man, either officer of the law or a private citizen, can control or hinder any one of the thousands of bee-keepers of Austro-Hungary in the use of ceresin foundation, whenever and wherever he pleases, whether it be made by means of a plaster-Paris or wax mold.

BARON ROTHSCHUETZ.

Weixelburg, Austria.

[This article is interesting and valuable; but I feel sure no American manufacturer would think of making adulterated foundation.—Ed.]

* This certainly does not apply to this country.—Ed.

RAMBLE NO. 134.

BLOCKSBURGH.

By Rambler.

We divided our deer meat with our friend the blacksmith who had so kindly allowed us the use of his corral. He did not enthuse much, however, over deer meat. He said his boy could shoot one almost any day. Our blacksmith wielded his hammer, chewed plug tobacco, and discussed the tariff on wool, in his shop in Harris. When we passed through Harris we found the blacksmith's shop the only place of business there, and, of course, our smith was an important personage. We lifted our hats to him as we passed, and he returned our salutation by coming to the door and expectorating a quantity of tobacco-juice. He wiped his mustache with the back of his hand, and returned to the duty of pounding his anvil.

We rushed down some long steep grades, and made good time. Eel River, a fine mountain stream, we crossed here. Bro. Pryal wanted to stop and fish again. It was truly wonderful how the sight of a stream of water would stir up all of the piscatorial elements of his composition. We hastened across the long bridge; and Susan B., losing sight of us, set the whole valley vibrating with her neighing; and the series of bites Bro. Pryal wished so fondly to indulge in were lost. Our dog Jack was an object of sympathy these days. The hot sands of the road made him footsore; and on the long stretches of mountain travel, where we could find no water, he learned to look up to us for a drink from our canteen, and he became quite expert in the exercise of drinking from it.

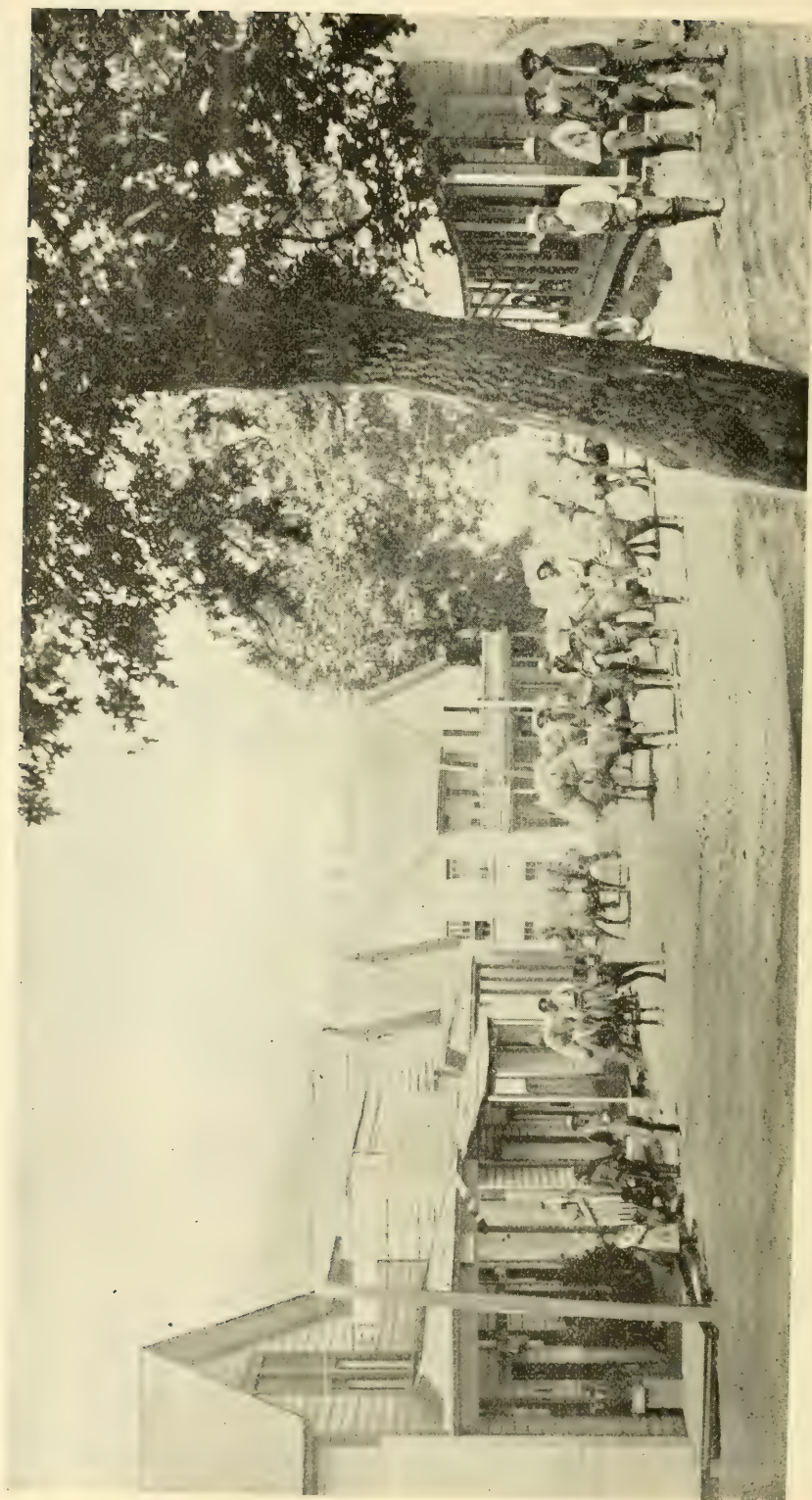
We made another forced drive after crossing Eel River, and after dark entered the little town of Blocksburgh. This time the shoemaker came to our rescue and provided a camp in the suburbs of the town, near a pure, sweet, cold-water spring, which fountain of water was the making of the town. Blocksburgh is a town of about 200 population. The residences are somewhat scattering, and located upon the spurs of several hills which converge here; and to get a view of the whole town one must needs get directly overhead. It was founded in this unique place by Mr. Blocksburgher, and all on account of being near that excellent spring. Mr. Block, as they all called him, for short, was a hale and hearty old man of about 75 summers, and occupied one of the leading stores of the place. For five years after the first establishment of the settlement, the only communication with the outside world was over a trail where every thing was packed in on the backs of mules. Another prime factor in the building of Blocksburgh, besides the spring, was its being the center of the wool industry. Over these mountains, and in the valleys, thousands

of sheep found succulent pasturage; and when wool was 40 cts. per lb., dollars were brought to the pockets of the sheep-herder; and the owner of a few thousand sheep in a few years realized a fortune. But of late, dull times had invaded these wilds, and the price of wool had subsided to less than 10 cts. per lb., and the industry was rapidly waning. Our visit to this wool country was just before the State election, and the politicians were much heated over the tariff problem; and tariff or no tariff on wool was their song, and the question is not settled even unto this day.

"There was a time," said Mr. Block, "when this store of mine was completely surrounded and nearly hidden from view with piles of sacked wool. It was brought in from the surrounding mountains, on mules, and the annual handling of wool amounted to the hundreds of thousands of dollars; and even now, when the price of wool is so depressed, the street presents a lively scene when a cavalcade of mules arrives with their immense burdens of wool," as will be seen by the photo. A large number of sheep-men came here in the earlier California days, and isolated themselves from civilization to a far greater extent than did ever a bee-keeper. These sheep-ranchers had much trouble with Indians, and Mr. B. said that, at one time, he could count up a hundred men who had been killed by the red man. Then there were saloon-rows that killed off a few more; "but," said he, "I believe there has not been a man killed here in a year."

The sheep-men finally sort o' compromised matters with the Indians by marrying their squaws, or, rather, taking them. Such were called squaw-men. Not a few were called men of the squaws, for they had taken a plurality; and the worst feature of this amalgamation of the races was that the squaw-men, many times without the least appearance of a troubled conscience, would leave their squaws and offspring to shift for themselves. The dusky wife had perhaps been a potent factor in making his fortune; but in his bettered worldly possessions he would move to town, build a new house, and marry a white woman.

We spent ten days in this town, and nearly every day some quaint character from the surrounding country would turn up. Here is an old man in from some branch of the Eel River, with a few boxes of fruit for sale. His apparel was ragged blue jeans; his toes protruded from an old pair of shoes; his hat was minus one half of its brim; his gray unkempt locks dangled over his shoulders; still this man could quote you scripture, Shakespeare, and Milton. He had been a man of books, and at one time had thoughts of the ministry. Even now it was said that he would make religious harangues to a crowd when opportunity offered. His hair he allowed to grow long, because in that he could imitate the lonely Nazarene;



"THE WOOL MARKET IN THE STREETS OF BLOCKSBURGH."

but I noticed he did not imitate that personage in his clothing; for through several rents in his blouse I could see the bare hide of the man, showing the total absence of a shirt.

In him was fulfilled the idea of the poet when he exclaimed:

Sad is a man without a wife;
Sad is a ship without a sail;
But the saddest thing to me in life
Is a shirt without—its proper length.

What could be more sad in this case than the absence of the entire shirt, the sail, and the wife?

The shoemaker's boy said his housekeeping was off the same piece with his general make-

the hot sun in their then exposed position melted a few of them to destruction, and the rest were moved into the dense shade of the redwoods, and here in various places the hives were mounted upon platforms attached to the trees, six feet from the ground. Hogs and cattle roamed the forest; and to keep them from their depredations, the hives were this elevated. The bees were not prospering in the shade, and they were to be moved out again. Of all trees to make a dense and cool shade, the redwood is the chief. Mr. Hope said that many bee-trees were found in these forests, and they were always well supplied with honey. His bees produced a good but dark honey. I pre-



CLIMAX ENG.
CLEVID, O.

MR. HOPE'S APIARY.

up; that his cat would lick out the frying pan, and then curl up in it for a nap; and his bed—here the boy's mother cuffed his ears, and he went away disconsolate.

Now, a bee-keeper would never degenerate into such a state of bachelorhood as that.

As a relief to the above picture, and in sharp contrast, I will show you the home of the only bee-keeper of Blocksburgh. Mr. Hope. Mrs. Hope is a hale and stout English woman, and Mr. Hope and Mrs. Hope's son are the blacksmiths of Blocksburgh.

The smith, a mighty man is he,
With strong and sinewy hands;
And the muscles of his brawny arms
Are strong as iron bands.

With these brawny arms Mr. Hope had cleared away the crown of the hill, and upon it planted a pleasant home. The vine and the fruit-tree were growing with a vigor such as can be induced only by a virgin soil. In the rear, and toward the east, the noble redwoods formed a fitting background, while the mountains shade off into the distance. Mr. Hope had at one time about 20 colonies of bees; but

dict that it will be a long time before bee-keeping as a paying industry will be practiced in these backwoods.

THE BEST FORM OF HIVE.

FOOTNOTES: WHY THE LANGSTROTH FORM OF HIVE IS BETTER THAN THE CUBICAL; A REPLY TO FRIEND BOARDMAN'S ARTICLE ON PAGE 251.

By J. H. Markley.

Mr. Editor:—I see, on pp. 251, 252, you allow friend Boardman to go on in his comparison of the square and long form of hives, showing the advantages of the former over the latter, without so much as using your footnote on him. He admits, in the very beginning of his comparison, that "bees adjust themselves to a wide range of circumstances, and even to serious inconveniences, in the hive they sometimes occupy, without seeming to materially affect the result." Now, "I am sure that this furnishes proof" that we should subject them to these little "inconveniences" by an "economical form of hive" that will give the best results in the production of either of the forms

of our finished product. I am well satisfied (by actual observation) that many bee-keepers stumble on to some form of hive "by accident rather than the careful consideration" of *practical* results, and whimsically conform to its inconveniences so long that the greatest amount of success with another and more "economical" form will not induce them to shake off the spell.

Of course, the square hive "furnishes more nearly the natural requirements" than the long shallow form; but doesn't the straw hive, as he says, or, for that matter, the hollow tree, furnish that quality to a still greater extent over the cubical? It isn't the "natural requirements" we're after, as much as subjecting the bees to these little inconveniences on their part, for the sake of the greatest financial results?

ADVANTAGES OF THE SQUARE HIVE.

In regard to the holding capacity of the eight-frame hive not being large enough, why not use a ten-frame L. hive, which affords the same "economical form in construction," and which affords no more "surface exposure," that I can see, if we consider both the ends as well as the sides of combs; and it seems to me that end exposure is more objectionable than side. If a square hive is desired in order to obtain a more desirable height for manipulation, why not elevate the long shallow hive to suit the fancies of the operator—a position, by the way, that many desire on account of the ravages of vermin.

SQUARE VS. LONG HIVES FOR WINTERING.

In the square hive, "at the beginning of cold weather the brood will all be hatched." Just so in the long hive. "This will leave the lower part of the combs empty, upon which the bees will be clustered." That's the way they do it in the long hive. "The stores," he says, "will be above the bees, in the most favorable position to be protected and preserved by the heat ascending from the cluster." I don't know about that. I will see you later. Again, "As winter advances, the consumption of stores enlarges the brood-nest of empty combs, and the cluster advances slowly upon the stores above them." Say! hold on! Isn't it a fact that, but for the short warm spells during winter, that permit the bees to carry stores from any direction in the brood-nest to the center of the cluster, they would starve, the shape of the hive notwithstanding? Again, isn't it a fact that brood-rearing invariably commences in the center of the cluster where the outside honey is being carried? Speaking about dormant clusters moving on to the stores—why! dormant clusters are dormant—they don't move. If cold weather compels them to stay dormant long enough, the bees will "go up" while the temperature goes down. He says, "Stores of honey exposed for any considerable length of time to the cold become candied,"

etc. Now, the past winter I had honey granulate all around some clusters, I believe, by the heat generated by the bees evaporating the watery portion of the stores.

As space forbids a more minute criticism of friend B.'s article, I shall be content if allowed to enumerate a few of the many advantages of the long shallow hive, from my point of view.

ADVANTAGES OF THE LONG HIVE.

It is more shallow, hence less liable to blow over. It takes narrower boards in construction, and consequently is less apt to season-crack. Combs are less liable to break down by high temperature. I have seen dozens of hives with American frames, where every comb in some cases would collapse at a high temperature, but never one with shallow combs. Combs being shallow, they are easily removed from the hive—you don't need one side of the hive knocked out. Combs being shallower than in square hives, the bees enter the supers more readily. We all know that bees will work above quicker if a one-tier super is used instead of a double-tier, and still a shallow hive with *two* tiers of sections is but very little taller than friend B.'s; consequently it stands to reason that better results may be expected from a long shallow hive than a square one which, in consequence, is taller.

Carbondale, Kan.

[It is true, I made no answer to the article on page 251. Inasmuch as I knew our friend Boardman had more to say on the same subject, I decided to reserve my footnote until that time. Well, if you will turn to page 296, April 15, you will find my answer. But I do not like, as a rule, to "footnote" an article so hard as to spoil its force; indeed, I would never do it unless I thought the teachings were liable to do harm, or were founded on error. Mr. Boardman produces good arguments for his side, and to a great extent I should prefer to let them stand, so far as I am concerned. But suppose I had "footnoted" it so hard as to knock his arguments into smithereens, then there would have been no occasion for your writing the above valuable communication. If the editor tried to make every article lean his way, and break down the force of every article leaning the other way, his journal would be narrow, biased, and teach nothing but one-sided truth.—Ed.]

LARGE HIVES.

THE LONG-IDEA HIVES.

By W. S. Hart.

Mr. Root:—I have just read Mr. J. A. Nash's article, on page 348, on "The Large or the Small Hive;" also the two that follow it, favoring the large hive, and I fully indorse the three in nearly every point on which they treat. As I have not followed this discussion of "Large vs. Small Hives" from the beginning, I will not attempt to enter it farther than to give my choice and a few facts and conclusions bearing on the matter, for fear of merely giv-

ing a repetition of what has already been published.

After many years of successful honey production I am fully convinced that, for the most profitable results, a large hive must be used, and this is especially true in the case of the production of extracted honey. Nor do I believe that this necessity is a local one to the extreme South, though possibly more marked here than further North.

In 1877 the writer was using a small hive of one cubic foot capacity, with (during the honey-flow) a half story top section over it. The outcome was a moderate yield of honey and a very large yield of swarms. As I then desired increase more than honey, the hive served my purpose exactly. Later, as my wish for a goodly number of colonies was being satisfied, my desire for a larger number of bees to the colony increased. I plainly saw that, in this direction, lay the accomplishment of my ultimate object, that of getting the greatest amount of honey with the least expense of money, time, and labor.

I made a lot of eight-frame L. hives, but found they did not give room enough for brood-rearing in the spring, so I left the top sections (the same size as the bottom sections, but supplied with but seven frames) on the year round, and put on extra ones during the honey-flow. This arrangement curtailed the swarming impulse to some extent, but there was a good deal of unnecessary work to be done, and the second-story combs had about as much brood and pollen in them as those of the body of the hive. I would occasionally find brood in every frame, except the outside ones, and, sometimes, some even in them in both stories. This left me no clean bright combs in the two-story hive for surplus honey, and no room for storing without a third story—a hand-to-mouth condition that I do not want in my apiary at any time. I concluded that there was little danger of getting hives too large, so I made ten frame hives for L. frame, and with top sections on the year round, and used them side by side with the eight-frame hives for some years. Through what seemed to me indisputable proofs of their superiority, I was led to increase the number of the ten frame hives while the eight-frame hives have gradually found their way to the attic of my honey-house, where now all but one are nicely tiered up awaiting a purchaser in some one who prefers a small hive.

The reason I did not adopt a twelve-frame hive is, that they are too heavy for one man to handle. When Mr. Olaf Olson came to this country he asked my opinion as to the best size of hive, and I told him that, except for the awkwardness in handling, I preferred the twelve-frame. He made a few of that size, to test my conclusions, and from them secured some astonishing yields. I saw one of these

hives, three stories high, at his apiary, full from top to bottom of brood and honey. He told me that it had been extracted from but a few days before, and that it had been refilled as quickly as the smaller hives beside it. By actual weight this colony brought in 24 lbs. of mangrove honey in one day. There was no shenanigan about this colony. It was the progeny of one queen only, and had no special care over and above the others about it. One only, I believe, of our most successful apiarists of this section uses the eight-frame hive, and he tiers them up high to get the necessary room. If bee-keeping were my specialty, and my ambition required that I make an astounding record of a great honey-yield with least labor, a "Long Idea" hive, taking 16 frames, and a division-board, with a regular ten-frame top section, supplied with 9 L. frames to put over it during the summer honey-flow, would fit my wants nearer than any thing else that I now think of. Other matters claiming my attention, however, and the proposed change being an expensive one, I manage to be reasonably content with last season's record of 554¼ lbs. from one colony, and an average, on 116 colonies, of 354 lbs. per colony from two-story ten-frame Langstroth hives with nine frames in the top section.

The freezes of last winter have so changed the conditions here that it will be two or three years before we can reasonably hope for another large yield of mangrove honey.

Hawks Park, Fla., May 25.

EIGHT FRAMES NOT ENOUGH FOR SOME QUEENS.

HOW EXTRA ROOM IS SUPPLIED AT DR. MILLER'S.

By Emma Wilson.

We have decided most emphatically that eight frames are not enough for some of our queens, as some of our strongest colonies have ten and eleven frames of brood. In the spring, as soon as a colony gets pretty strong, say with about five frames of brood, we put an extra story of brood combs under the colony. We have two objects in view in doing this. First, if the queen feels crowded and wants more room, she can enlarge the brood-nest at her pleasure. Second, the combs are nicely taken care of by the bees, and, if not needed, no harm is done.

Last year the weather was delightfully warm; and in some cases, where the colonies needed more room, we placed the extra story on top, as that was less work than putting it under, and in a few cases put a frame of brood in the upper story to induce the queen to go up sooner. Shortly afterward we had a cold snap; and the consequence was, the bees had a bigger contract on hand than they could care for. It makes a big difference whether the empty space

is above or below the brood-chamber. In every case where the empty story had been put under the cold snap had not seemed to affect them much, while those that had the empty story put on top had not increased in brood, and in some cases had less brood than when the extra story was given.

This year we profited by our former experience, and all extra stories were placed under the brood-nest, although up to May 12 it was the warmest spring on record. After that we had some extremely hard freezes, with about two weeks of cold weather.

I spoke of giving extra stories, but it is not the intention to leave them on during the honey-harvest. They will be taken away when we put on supers, with the exception of a few which may be left on for experiment. We have also put a few colonies in 11-frame hives for experiment.

We hoped that, by giving our strong colonies that extra story of combs under, it would do away with the swarming fever; but I am sorry to say I can not see that it makes much difference. Nearly always we find queen-cells in these colonies first, not because of the extra stories, but because they are the strongest colonies. Now, we know that the Dadants have little or no swarming because they use large hives and give the queen plenty of room. What's the trouble with our colonies? Are not 16 frames enough for the queen? That's more room than the Dadants give. Is it because they are in two stories? The queen seems to go readily from one story to another, and we find five and six frames of brood in each story, and queen-cells started. What's the trouble?

Why do our queens behave so differently from Mr. Hatch's? He finds difficulty in getting his queens to return to the lower story after going up, although the lower story is filled with bees and brood, while our queens go down of their own accord into a story of dry empty brood-combs.

As I said in last number, our feeding this spring has not been a very great success so far, as the bees have been so slow about taking it. In two or three cases the feed turned to vinegar on the hives. If that feed had been placed a distance from the hive, and those same bees had had a chance to get at it, I think they would have taken it eagerly, as they were promptly on hand in any case of outside leakage. I wonder what makes the difference. Do they think it's all right as long as it's in the feeder over the brood-nest, and theirs to be taken at their leisure, and they must hustle if they get their share when it's away from the hive? It looks like it, if we may judge from their actions.

They are doing better about taking it, now that fruit-bloom is gone, and dandelions nearly so.

Marengo, Ill.



TWO QUEENS WITH A SWARM.

Question.—Does a colony of bees ever have two queens? I hived a swarm of bees the other day that had two queens, I am pretty sure. My neighbor tells me it was two swarms, as he says there is never more than one queen in a colony.

Answer.—Probably both you and your neighbor may be right in this case, but you have got things a little mixed. I think such a thing was never known as a prime swarm of bees coming from a colony in a normal condition, having two queens with it. To be sure, we do sometimes have two laying queens in a hive at the same time, although such is a rare exception; but no colony was ever known to swarm at such a time, and both of these laying queens go with the swarm. With a prime swarm, or what is often erroneously called a first swarm, there always accompanies it a laying queen. All swarms having a young or virgin queen should be classed as after-swarms. When a prime swarm issues it generally leaves maturing queen-cells in the old hive, from which, when hatched, the young queens lead out all after-swarms. The only exception to this is that hinted at above, where, from some cause, the old queen dies near the swarming-season, when several queen-cells will be formed on the brood left, so that young queens may lead out what appears to be a prime swarm, the same as they do after-swarms. For convenience, all swarms except the one having the old or laying queen are called after-swarms by bee-keepers, so the readers may know what the term "after-swarms" means. Some days after the prime swarm has issued, the first young queen emerges from the cell; and if after-swarming is considered to be best, in the economy of the hive, the other young queens are kept in their cells by a little knot of bees clustering on them at all times, so the lid of the cell can not be removed to let the queen out, her majesty being fed all the time through an aperture in the royal cell. If further swarming is not considered "economy" by the bees, then all the other queen-cells are torn down and the young queens destroyed, so that the first hatched is the only queen in the hive. If the cells are protected as above, the first-hatched queen seems to get into a rage, and utters shrill notes at intervals, called the "piping of the queen," which is kept up for about two days, when the second swarm, or first of the after-swarms, issues. This piping of the queen is always heard, if listened for, before all after-swarms, or in any case of a plurality of queens in a hive intending to send out a swarm. The queens kept back in their cells by the bees are growing in age and strength, the same as is the one which is out, they telling of this by their trying to pipe the

same as the one does that has her liberty, which noise is termed "quahking;" and so it happens that, during the hurry and bustle of the second swarming, one or two of these queens hastily finishes biting the cover off the cell and gets out with the swarm, in which case two or more are found with the swarm, as in the case of our querist, although it is a rare thing to see more than two or three queens with a second swarm. If a third swarm is to issue, the bees now cluster about the remaining unhatched queen-cells as before, keeping all queens prisoners except one, which queen scolds or pipes away, as did the one before, the others in the cells showing their anger back again by a chorus of quahkings immediately after the first ceases piping, when, after the lapse of two days or such a matter, the third swarm issues. As there are fewer bees at this issue than there were before, and more mature queens held as prisoners, the queen-cells are quite generally vacated by the guard-bees; and queens, bees, and all rush out, and in such cases I have counted as many as from 12 to 20 queens with one such swarm, though from one to five is the usual number. In the above I have tried to give a short insight into the mysteries of the swarming of bees, many points of which do not seem to be fully understood, even by those who have kept bees for ten years.

WHICH WAY SHOULD HIVES FACE?

Question.—Should a hive face north or south? Would east or west be preferable to either?

Answer.—Nearly all bee-keepers agree that a hive should never face north of an east-and-west line, the majority favoring a southerly direction. The reason given for this is, that the morning sun entices the bees out to work earlier in the day, while a northern exposure keeps them in later, and in winter is almost sure to result in the loss of the colony in northern latitudes, from our rigorous north winds blowing in at the entrance, and the confinement of the bees, caused by the entrance being in the shade on mild, sunshiny days, when the bees in hives facing south fly freely. In southern latitudes it might not make much difference which way hives face; still, I have the impression that even in Florida and Texas the most of the hives are faced as above.

SHADE FOR HIVES.

Question.—Is it best to have a roof over the hives proper, or have them under trees for the purpose of shade?

Answer.—Some of our best bee-keepers use a shade-board made of lath or light lumber to shade the hive during the hot summer months; but if the locality is at all windy, a weight of some kind must be used to keep the wind from blowing them away. This weight is generally a 15 to 25 lb. stone, which adds very much to the labors of the bee-keeper, as it must be lifted off and on every time the hive is manipulated. Shade-trees (not very dense) are always good, not only for the bees, but they add much to the

comfort of the bee-keeper; but it often so happens that not every desirable spot for locating an apiary has such trees upon it. After having tried all kinds of shade I now prefer to paint the hives white and let them stand in the sun, where there is no danger of the cover leaking. White has a tendency to reflect the heat rather than absorb it; hence any thing painted white does not become nearly as hot as do the dark colors, so the bees in white hives remain comfortable at times when those in dark hives are driven out by the heat.

DEATH OF MRS. O. O. POPPLETON.

The following letter tells us the particulars of this sad event:

Friend Root:—I have just received very sad news from friend Poppleton. His dear wife Mattie died, after a short illness of less than a week. He writes me that they did not have any idea the sickness would be fatal until three hours before she passed away. She was taken down with a complication of diseases, but the final cause of death was heart failure.

Mrs. Poppleton was a native of Indiana, having been born in Maysville about 41 years ago. She will no doubt be remembered by a number of bee-keepers, having attended the national convention at Cincinnati in 1882, and Toronto in 1883, besides other State conventions. She was a well-posted and enthusiastic bee-keeper; and ever since her marriage to friend Poppleton she has been his first assistant in the practical care of the apiary.

Mrs. Poppleton has been a consistent and prominent church-member for thirty-one years, having joined the Methodist Church when ten years old. Cheerful, kind-hearted, and a lady in every sense of the word, to know her was to value her highly; and in her death, the community in which she lived sustains a heavy loss. While the few who were privileged to class themselves among her intimate friends will feel their loss deeply, I know how much friend Poppleton needs their sympathy in his great bereavement. H. W. MITCHELL.

Hawks Park, Fla., June 4.

[Our readers will recollect that Constance and myself spent several days at the home of friend Poppleton. Very soon after my arrival I was deeply impressed with the bright Christian faith and hope that continually shone forth from every look, word, and action of our departed sister. The Bible was her constant companion and friend; and when writing some of my notes for GLEANINGS, if I wanted a scripture text she gave it with remarkable readiness, showing herself almost a living commentary on the sacred pages. It was especially at that Sunday-school I have told you about that I was impressed with the thought that Mrs. P. was a spiritual guide and sheet-anchor in that little community. Our friend Harry Mitchell has got it right, where he says the little flock there has sustained a heavy loss. I often think of that little new Congregational church, and of the little flock that gathers there each Sabbath. I believe they have preaching service only every other week, and this throws an additional responsibility on the little Sunday-school that is kept up on the Sundays when there is no preaching. May the great Father above sustain and cheer up our afflicted brother in his great bereavement. The dear wife was to a most remarkable extent his companion and helpmeet—not only in joy and sorrow, but through all his daily tasks. She went with him on his pleasure-trips, helped to manage the boat, and seemed to be in reality a part of his very self. May God give him grace to feel that she is his friend and companion still, even though she has stepped on, for the time being, a little before him.—A. I. R.]

TRADE NOTES.

THE ASPINWALL HIVE.

By F. L. Thompson.

One logical inference from the large and small hive discussion is, that any hive which can not be contracted or expanded frame by frame up to the maximum, without fussing with division-boards or dummies, is imperfect.

Two sizes of the Aspinwall hive are made—one holding 1 to 11 standard frames, the other 1 to 11 deeper ($17\frac{5}{8} \times 11\frac{3}{4}$) frames, or a $1\frac{1}{4}$ to nearly 14 L. frame capacity. I prefer the latter, as it fulfills the condition of perfect elasticity, while preserving the standard length. I see by the *Review*, however, that Mr. Aspinwall is not a supporter of large capacity *per se*. The original reason for the expansiveness of the hive seems to have been to make room for the introduction, between eight brood-combs, of non-swarming wooden dummy combs, half an inch in thickness, with cells open at both ends. These are still on trial, but promise much.

The left side (on the right in the figure) is a cleated $\frac{3}{8}$ -inch board, which, besides forming

keeping, under "Shade for Bees," "A colony of bees is a living, heat-producing body, and can be kept cool in the same manner that we keep our bodies cool; viz., let its clothing (hive) be thin, with a free circulation of air." This unpainted $\frac{3}{8}$ -inch front doubtless also facilitates the insensible evaporation of moisture. The rear of the frames also forms a $\frac{3}{8}$ -inch wall, separated by a bee-space from the back, which is a $\frac{5}{16}$ -inch board, bolted on with iron cleats. The permanent side, and the bottom-board, are of $\frac{3}{8}$ -inch lumber. A further aid to coolness is afforded by a space left under the removable side, closed by a strip when not in use. This accomplishes the same result as wedging up the hive, in a much easier manner. It is also handy in hiving swarms.

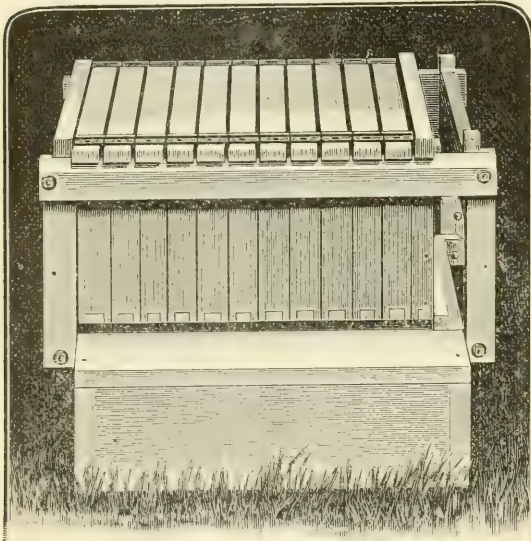
The bottom-board is fixed. If other things were equal, I would choose a loose one. But I prefer this hive with a fixed bottom to the next best with a loose one, especially as the fixed bottom has some undeniable advantages of its own. This bottom is easily cleaned, the front and side being open. I doubt, however, whether the fixed bottom may be regarded as an essential characteristic of the Aspinwall hive, unless so desired by the powers that be.

Simple castings, fastened by a screw near each end of the top-bars, complete the circuit of a bee-space elevation of the top edge above the frames; secure correct longitudinal spacing, and, in connection with the closed ends, prevent the bees from contact with the frame-shoulders, which thus remain unpropolized. These shoulders rest on a beveled railing which forms part of the framework, making an ideal method of getting at the frames, without introducing the fingers among crawling bees or dauby propolis. This feature also removes the most serious objection to the use of wide top-bars, which are usually hard to get hold of. The frames being spaced $1\frac{1}{4}$ inches, the top-bars are $1\frac{1}{4}$ inches wide and $\frac{5}{8}$ inch deep, which dimensions are best to avoid burr-combs.

The frames are held firmly together by a blunt screw turning in the side piece of the framework. Two blocks, the three dimensions of which are respectively equal to the width of one, two, and three frames, make the ordinary adjustment by their different positions between the screw and the movable side.

Closed-end frames, accurately made and held together so as to present a smooth surface to the bees, are easy to handle, and have several advantages of their own, of which, perhaps, the most important is that, in wintering and breeding up in the spring, the heat of the cluster is confined to the comb-spaces which it occupies.

The Aspinwall frames have two advantages



THE ASPINWALL HIVE.

one wall of the hive, also performs the functions of a follower. Being perfectly free from the hive, it is as easily handled as a frame, and is suspended in the same way. This freedom is secured by making the essential and fixed part of the hive-body consist of a framework, mainly of oak, bolted together. The remainder of the hive, except the frames, is poplar.

The front is open. The closed-end frames take up the whole space. The advantage of this arrangement will be seen by the following quotation from Hutchinson's *Advanced Bee-*

of hanging frames which ordinary closed end frames do not—no bees can be crushed under or back of the frame-ends, and the lateral play is considerable, amounting to about $1\frac{3}{8}$ inches.

Every one has noticed, in brood-chambers which are not extracted from, that a hillock of honey on one comb sometimes collides with

fore and behind, and the hive-stand below, made provision for a nearly continuous envelope of packing on all six sides, between two and three inches in thickness. The results were satisfactory. In the spring, frames were as easily got at for inspection as in summer, without disturbing the packing.

I did not have an Aspinwall super last summer, but have just filled one with sections to see how it works. I find it can be filled as fast as or faster than a T super. The cut shows the principle. Two sides, the rods connecting them, and the separators, are all there is of the super. The separators are turned to a right angle at the bottom, and have insets corresponding to those in the sections. The distinctive feature, which makes possible this simplicity, is the four round sticks which are used when the super is being filled, and afterward withdrawn. These pass through holes in the ends of the side-boards, and keep the sections to their proper place lengthwise until screwed up by the thumb-screws on the rods, while giving ample play for inserting the fourth section in each row. When the sections are all in, they can be temporarily wedged at the ends with a strip of the proper thickness, to keep them square until fastened. A flat board is then laid on top, to which a

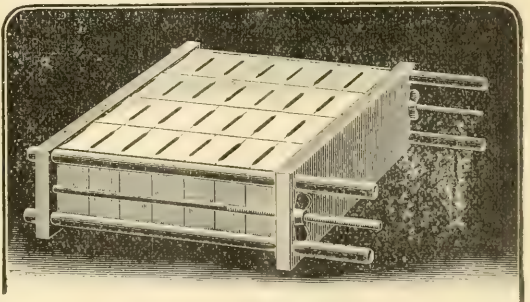
little pressure is applied, and the thumbscrews are tightened. On removing the board, sticks, and wedge, the result is a homogeneous and smooth block of sections, which is conducive to cleanliness, as I can testify from having used another super in which the same result is achieved in a different manner. The sections can be scraped in a body, before being removed from the super. This super admits of contraction or expansion just as much as the hive.

The flat or the Higginville cover may be used on this hive as on any other, and it will

another on the next one, if the frame is drawn directly out or replaced without stopping to move the other frames aside. A closed-end frame is replaced by sliding its edges down past the edges of the next one, so as to avoid catching bees between. The figure shows how this is done in the Aspinwall hive, without any collision. The offsets on the sides of the hive, against which the last frames impinge, slant a little from the perpendicular, so that, when the hive is leveled and the frames screwed up, each frame slants; consequently the septum of the comb is a little nearer one side at the top, and a little nearer the other side at the bottom (the top and bottom bars being placed to correspond). Hence when one frame commences to slide past another, the parts of the combs which are then opposite are farther apart than when down, and the normal distance between them is attained only when the frame is completely down.

In manipulating the frames of an Aspinwall hive last summer I was always able to hold each frame close up against the next one when sliding it down, though occupied by a strong swarm, which put plenty of honey in the tops.

For wintering and spring protection I have had experience with but one of their devices. I believe there are several. In this, external attachments on the front and rear, internal ones on the sides, a tray above projecting be-



take any style of super. But if the Aspinwall super is used, a deep cover is necessary; and, after all is said and done, nothing is more thoroughly satisfactory than the old reliable cap, covered with tin. Rain and snow can never beat under it; and when, as in this case, it is deep enough to accommodate two section-

supers, thereby keeping the sections warm in cool nights by adding an internal arrangement to suit the taste of the individual, and has plenty of play, and does not need a stone to weight it down, and is never propolized, it can hardly be called "impractical."

I have no interest in the sale of this hive, but have written the above to call the attention of bee-keepers to new and practical ideas.

Arvada, Colo.

[Some time ago an enthusiastic admirer of the Aspinwall hive (advertised in these columns for a number of issues back) wanted to know why we did not have that hive illustrated in our department of Trade Notes. I had intended previously to have this done, but somehow I had not got around to it until my attention was called to it. I wrote to the Aspinwall Manufacturing Co., asking them, if they saw fit, to send a description, accompanied by engravings, or request one of the users of their hives to do so. As will be seen by the above, they acted on the latter suggestion. There are some features about the hive I admire; and although not having tried the same I am of the opinion that it will work very nicely. Not every bee-keeper will be pleased with the same kind of hive; and I am very glad that we can give our readers a fair and impartial view of several good hives.

Perhaps it would be well to say that hives that are made up in part of the end-bars of the frames have never been very popular. Most bee-keepers seem to prefer some sort of box or shell in which to put the frames. However, two of the largest bee-keepers in the world (Elwood and Hetherington) use closed-end frames without the protecting case during the summer, each side being closed up by a panel, something as shown in the Aspinwall hive above. The Aspinwall system employs the plan used by Quinby and Hetherington; but instead of using standing closed-end frames it used closed-end hanging. — Ed.]



J. P., Mass.—You can put bees into a newly painted hive as soon as the paint is dry. Paint is not offensive to bees; in fact, about every two years we paint all our hives while the bees are in them.

H. F. S., Pa.—The Dovetailed hive—in fact, all hives of modern construction—have plain, square edges. There is no danger of supers and covers blowing off, because the bees will fasten them on with propolis. Neither will the rain beat in and rot the edges that come in contact, as would at first appear. Beveled edges between parts of hives and telescopic joints have been largely abandoned.

F. C., Mich.—Noticing our advice in the A B C, to have hives face toward the east, says the hives he has facing that way have not done nearly as well as those facing in other directions. The directions we gave in the A B C book are general, and apply to most localities. If your prevailing winds are from the east,

then, of course, it is not advisable to have your hives point that way.



With the exception of the small trees, basswood seems to be profusely loaded with buds that will soon burst into blossoms. If these blossoms shall, later on, burst forth with dead loads of honey, the hearts of bee-keepers will be glad, in view of the fact that clover promises but little.

ALTHOUGH there has been very little honey coming in, our bees have swarmed earlier than usual. They swarmed out, notwithstanding there is plenty of room for the queens, and for the bees to store honey. The only reason the apiarist and I can assign for this is the extremely hot weather that made the bees think other quarters might be more desirable.

In the *Am. Bee Journal* Mr. G. W. McGuire, of Dark Ridge, N. C., comes out vigorously in favor of large brood-chambers, he having used them from 600 square inches up to 2172. The colony in that hive filled it in 16 days, and gave a surplus of 63 one-pound sections. The next spring he bought four colonies in small hives, and they did nothing but swarm, while this big colony gave 110 lbs. of surplus. He claims that so much honey in the brood-chamber is of priceless value to the bees. June 2, 1893, one of these colonies gathered 22 lbs., from poplar. Mr. M. claims to have one of the best honey localities in the world—poplar and basswood. It seems likely that Western North Carolina will not much longer remain the *terra incognita* it has always been, as it is doubtless one of the richest and most healthful parts of the United States.

BRO. HUTCHINSON has reason to be proud of the two articles in the *Cosmopolitan*, especially over the very fine photos from which the engravings were made. The two articles are written for the general public, and I hope that some time they may be incorporated in book form for general distribution. One very pleasant thing about it is, that the treatment of the subject is fair and impartial. It does not boom any particular hive, but simply talks *standard* fixtures and *accepted* opinions, leaving all the latest ideas and theories out. Mr. Hutchinson deserves a vote of thanks from the bee-keeping world for the masterly way he has given the general public *correct* information. I think there will be less talk about manufactured honey because it has been shown that hundreds of tons of pure honey can be produced right from the hive—all of it gathered by the bee.

BEES ON STRAWBERRIES.

IN the *Amer. Bee Journal* is an article from Hon. Eugene Secor, relative to the value of the strawberry as a honey-plant. It seems that, in a previous number of that journal, Mr. E. T. Abbott had claimed that bees visit strawberry-plants, in considerable numbers; but in the present number Mr. Secor quotes from a letter written by Wm. Kimble, of DeWitt, Ia., a man who raises berries by the acre and honey by the ton. He says, "It is a fact that bees never work on strawberries. I wish they did." Among others who write in the same way as to the utter uselessness of strawberry-blossoms for honey are W. S. Fultz, Muscatine, Ia.; G. M. Doolittle, and Dr. C. C. Miller. But when we consider what they do produce, we can easily excuse them for not giving honey too.

DO WE WANT THE APIS DORSATA?

IN our previous issue appears a petition having in view the importation of the *Apis dorsata*, from India. The editor of the *American Bee Journal* does not seem to "tumble" to the idea, believing that, if the government has any money to expend in that way, it would be better if applied in developing the known good races we have. Another writer thinks such bees could not be domesticated in a cold climate, and that they would not take kindly to hives, and they would not breed with our common kinds. He fears, furthermore, that, even if successfully introduced, they might increase so as to utterly run out the smaller bees, just as the miserable English sparrow has encroached so much on our useful birds—giving us in his own person nothing pretty, good to eat, nor pleasant to listen to. If my own enthusiasm for the *Apis dorsata* is not up to the boiling-point it is because I do not think it would pay for the trouble, even though they might not prove to be a nuisance.

SHALL WE MERGE THE BEE-KEEPERS' UNION
AND THE NORTH AMERICAN INTO ONE
SOCIETY?

IN the last number of the *Review*, Bro. Hutchinson hits a big nail square on the head in regard to the necessity and desirability of bringing about better organization among bee-keepers in this country and Canada. The plan is, at least in the rough, to have all the smaller local organizations auxiliary to the State society, and then in turn have all the State societies auxiliary to the (or a) national organization—or better, perhaps, a continental union. In an able editorial on this subject the editor says:

For these reasons I think it would be better if the North American and the Bee-keepers' Union were merged into one society. As it now is, the members and officers of the Union never hold any meetings. All discussions are made either in the journals or by mail, and all voting is done by mail. To the plan of voting by mail, I see no objections; but I do think it would be an advantage if the officers and leading members, or as many as wish to attend, could meet

in convention once a year and discuss ways and means face to face. When there was a change made in its constitution three years ago, the subject was first discussed in the journals, then continued in a meeting of the North American where certain changes were recommended and finally adopted by the Union, a decision being arrived at by means of a vote made by mail.

And again:

There are many things, aside from those already done by the Union and North American, that might be done by such an organization with an efficient executive officer at its head and money in its treasury. The feature mentioned by Mr. Case is a case in point; viz., that of looking after and reporting swindlers. I don't know that the constitution of the present Union would need any change to allow of such work being done. Two or three times the *Review* has exposed some swindler; but this was not done until numerous complaints had been received, and considerable time had elapsed. To call a man a swindeler because one man *said* so would often lead to unjust accusations. When an apparently just complaint is made, the Union could make a thorough investigation—more thorough than one man could afford to make.

I have long thought it would be a good idea to merge the Union and the North American into one society; and I am glad that Brother Hutchinson has set the ball a rolling. Then the North American could offer substantial advantages for becoming members of the same. While it would have its annual meetings as before, the fraternal handshakes, etc., the members would be entitled to protection from unjust legislation, and perhaps from swindles of all kinds. I do not know that I am prepared to say just yet that such a merging of the two societies would be wise; but I think the matter should have the earnest and careful consideration of bee-keepers. It is a good time now to discuss it, preparatory to the meeting that is to be held in Toronto.

THE CLOVER-MIDGE; ITS WORK UPON THE RED
CLOVERS.

THE clover-midge seems to be making serious havoc in this locality, at least on red clover. As I go out on my trips in the fields for pleasure and health, I find that fields of red clover look as if they had been literally riddled with shot. The leaves are perforated with holes anywhere from a sixteenth to a quarter of an inch in size. In every field this clover seems to be similarly affected. On top of this is the drouth; and the consequence is, the usual rank-growing pea-vine clovers look poor and feeble compared to what they ought to appear at this time of year. But I have not yet so far noticed that the midge has attacked the white or alk-sike clovers. Why they appear to be proof against this pest I do not know. This surely is fortunate for bee-keepers, because the large bulk of clover honey comes from these white varieties. I believe it is generally admitted by writers on agricultural subjects that the white clover seems to be proof against the midge. I

should like to hear from our readers, especially Prof. Cook, who may be able to give us more definite information on the subject.

THE HIVE DISCUSSION.

ALTHOUGH the hive discussion that has been going on in our columns may be a little confusing, from the fact that one side very able defends the eight-frame side, and the other just as ably shows advantages in favor of 10, 12, or even 16 frames, I think light is surely coming if not already here. Perhaps this discussion may be tiresome to some; but it seems to me it ought not to be stopped yet, although we have prolonged it longer than at first anticipated. The proper solution of the question for each individual means dollars and dollars. I see no way but that each one must weigh the arguments advanced by both sides, and then consider his own *locality*. I will say this much, that the defenders of large hives have shown a stronger following than any of us had any idea of; and it is evident, too, that there is a tendency toward the large sizes in some places. As for ourselves—that is, we here at the Home of the Honey-bees—we shall have to see stronger proof yet to induce us to change to a larger hive, although we shall be experimenting, and shall hold ourselves open to intelligent conviction. I think that, in the majority of the localities, the eight-frame hive is still the best. We shall have something pertinent on the subject in our next issue by J. E. Hand.

FIVE-BANDERS; THE TIDE TURNED AGAINST THEM; PROMINENT QUEEN-BREEDERS ARE GIVING UP THE BREEDING OF THEM.

We have several letters from prominent queen-breeders all over the country, condemning the five-banded bees on the grounds that they are short-lived, not good at wintering, are bad stingers, excessive breeders, etc. I am sorry I am not at liberty to give you their names; but one or two of them will probably have something to say about what they think of them, over their own signatures, in an early issue of GLEANINGS. I noticed in the last *Progressive Bee keeper* an article by E. T. Flanagan, with the headline reading, "The Five-banders are no good as Honey-gatherers." Mr. F. says:

If the advocates of the so-called five-banded bees could have been with me when I overhauled my bees this spring and noted the condition they were in as compared with the leather-colored Italians and first cross hybrids, they would never advocate their dissemination or propagation again. With exactly the same conditions as to hives, locality, treatment, amount of stores, and condition throughout the season, all were as like as possible; but in every case this spring the dark Italians and hybrids were found in good, fair condition, with no loss, scarcely, whatever, while the five-banders were reduced to mere nuclei, or were entirely dead, leaving plenty of honey (sometimes as much as twenty-five pounds) in the hives. Friend Alley, in his denunciation of them, has been fully vindicated if others' experi-

ence tallies with mine, and I judge it does from the reports in the bee-journals that have come to hand.

At the end of the last season we introduced a good many five-banders into our yard. Of the four or five colonies that we lost in wintering, three of them were of the yellow sort. They were such bad stingers all through the summer that I made a firm resolve that, unless they improved very greatly, we would go back to the leather-colored Italians, and now we have hardly anything else in the yard. Last season it was hardly safe to work among the bees, without a veil. This year the situation is materially modified.

I am well aware that GLEANINGS has, in the past, said some unpleasant things of the five-banders. It was one of the first to raise its voice against them; and now I am not surprised that the whole bee-keeping world is going back on them. The whole trouble is, that queen-breeders, rushed with orders, did not take sufficient pains to breed for their bread-and-butter qualities as well as for color; and the consequence was, they sent out any thing that had more yellow than the average stock, irrespective of other qualities. Now, mind you, I do not say this is true of *every* queen-breeder who raised these bees; but the tendency on the part of most of them, I fear, was largely so. There are other queen-breeders I might mention, but I believe Mr. Doolittle is among those who are careful and conscientious in breeding these bees. In the *Progressive Bee-keeper* of June 1 he says:

I can not be accused of pushing this yellow craze to the front; but seeing it was coming, I went about breeding the yellow bee up to the standard of perfection as honey-gatherers, to the best of my ability, the same as I had been and am still breeding the three-banders. I have both three and five banded bees in my home apiary, and these and hybrids in my out-apiary, five miles away, but mostly hybrids at the out-apiary. Thus it will be seen that I was in a position to tell which did the best at honey-gathering. With a buckwheat yield, the hybrids would come in ahead; while with a basswood yield, the average would not be greatly in favor of either kind till last year, when, from some reason that is not sufficiently clear to me to decide upon, the five-banders were ahead by some fifteen pounds per colony on an average.

As I have intimated above, I have never claimed any superiority for the five-banded bees; and while I believe there is a great difference in bees, yet I believe that the result in honey is more largely due to management than it is to the race of bees used; and those bees which are the most pliable under the hand of the apiarist's manipulation are the *best* bees, no matter what their color or where they came from. If any queen can not be manipulated or coaxed to give the great bulk of her bees so they will be on the stage of action in the right time to take advantage of the honey-harvest, she should be replaced by something that can. That the five-banded bees, the three-banded-bees of Italian origin, and a good grade of hybrids, can be so manipulated, is why I hold on to them.



FLORIDA TRAVELS.

I told you I was somewhat disappointed to find Manatee only a little village. Well, in going out into the country, unless you happen to go into the neighborhood of some of the nice improved places like friend Bannehr's and others, you would be likely to decide the country was not very much of a place either. I can readily understand how people going to Florida for the first time, especially if they get a little homesick, might declare it was for the most part a barren wilderness of sand and stunted pines; and some of these folks who are not careful about what they say might declare it was a swindle all round. Some years ago a railroad was built from Manatee to Sarasota; but the rusted rails now lie unused, unless it is when they have a picnic or excursion, or something of that sort. There is not travel or business enough to run one train a day, and, if I am correct, not even one a week. We accordingly started out with horse and buggy, to visit friend Corwin, of Sarasota. After we had got out a few miles, however, it began to rain, and we changed our course a little so as to strike Oneco, where the Reasoner Brothers have located their nursery. I could not help thinking on the way that it was a wrong place for a nursery away out in those desert wilds. There were hardly any people, no railroads, not even a well-traveled highway. Imagine my surprise under the circumstances, to find myself abruptly ushered in to beautiful grounds with tropical plants and foliage everywhere. Of course, the recent frost had left its mark; but the Reasoner Brothers have learned by experience that it pays to have some protection, even in Florida. They have several greenhouses covered with cloth, and steam-pipes going about in almost every direction in case the cloth is not quite sufficient. They issue a catalog of over 60 pages; and some of their rare and valuable plants are worth large sums of money. It does not pay, they have found, to take risks with such things. Just before the December freeze they had been putting in a boiler, and had got up a good many of the pipes. When admonished of the danger, all hands were set at work; and by doing their best, toward midnight they got the apparatus in shape so they could get a fire under the boiler. Not an hour too soon was the steam sent coursing through the lengths of iron pipe. Only those who have been in similar trying circumstances can imagine what a breath of relief they drew when their apartments began to warm up in spite of the frosty wind outside. Several hours were passed very pleasantly and profitably to myself in looking over the wonderful plants and fruit-bearing trees and shrubs. For the first time I here got a taste of that queer little orange, kumquat (*Citrus Japonica*). They are oval in shape, and a little larger than a gooseberry. You can eat them peel and all, just as you would a gooseberry or cherry, and yet it is really a most beautiful and delicious little orange. Trees five feet high have given a yield of over 2000 fruits. Last season in Jacksonville they were so very much called for that commission men advertised to pay a large price for all that could be furnished. The lime-tree produces a little lemon, but it makes more delicious lemonade than any lemon ever produced, in my opinion. The giant bamboo was also seen here, but it had been killed by the frost. I shall have

more of this later on. The display of pines, palms, palmettoes, and sago-palms, etc., was just wonderful. We nowhere found such an assortment of cacti in Florida as we saw in Arizona and California, but some of them were very beautiful at the Reasoner brothers' nursery. Of course, we had much to talk about in the way of plants and machinery for irrigation as well as for preserving the requisite temperature for tropical shrubbery. Finally we took a look at the private residence of Reasoner Brothers, nestled down and almost concealed beneath the beautiful forms of trees and shrubbery. Notwithstanding the thousands of dollars' worth that was saved by their steam-pipes and cloth-covered greenhouses, their losses were quite heavy in valuable plants that could not well be protected. Florida, left to itself, presents many features that are rather discouraging; but under the influence of care and cultivation, no one seems to know as yet what Florida may not do. More of this anon.

Before leaving the establishment we looked into a room kept warm and damp, made especially for propagating from slips. For this purpose a certain amount of heat and moisture must be maintained with very little variation. But the skillful florist, with the right sort of bed, will take not only slips from a growing plant, but even a leaf, or *piece* of a leaf, and make it put out roots, and grow. Now, the Reasoners make use of this propagating-bed to bring to life plants that seem determined to die. Sometimes valuable plants are shipped in from long distances, that would be entirely useless without the reviving influences of this propagating-bed and a skilled man to manipulate it.

On the trip from St. Petersburg to Manatee, I noticed, when rounding the point near Palma Sola, a child dextrously managing a little canoe. The winds and waves were boisterous, and I, with the rest of the passengers, was looking anxiously toward the child in the skiff, as it seemed to be. We were a little surprised to see the skiff make straight for the steamer; and as it came nearer we saw it was a little girl in the boat; and, without deigning to notice the rough waves or the wind, she pulled her little craft right up beside the steamer, which slackened up and caught hold of her little boat long enough to give her the mail and take hers in return, for she proved to be, in fact,

ANOTHER GIRL POSTMISTRESS.

Before starting out again, however, we noticed she picked up a lot of fish, evidently just caught, and piled up a heaping pailful, which the mate of the steamer drew up, throwing her some silver coins in return. I was almost ready to protest against letting a child take such risks. But when she picked up her oars and showed herself more at home in a boat than I am on my wheel, I ceased being anxious. One of the passengers explained that she received quite a little salary for acting as postmistress, and fetching the mail from the daily steamer; and besides this she caught fish enough to supply the dining-room on our boat, both sources of income being sufficient to supply the needs of a widowed mother, and perhaps lay up something for a rainy day, or for her own education.

I believe I was snubbed only once during all my trip in Florida, and this once it was my own fault, or, perhaps, the result of my own carelessness. In fact, when I look back and think of it I feel a little surprised that I received such unvarying courtesy from man, woman, and child, even including railroad officials, everywhere and at every turn. But now for this one exception. On my return trip from Manatee I was glad to get another glimpse of the little girl who managed the boat with such

wonderful grace and skill. This time the waves were still higher, and it seemed as if she were really in danger as she threw up her bag of mail, caught the other in return, and pitched her fish into the pail that was let down to receive them. She evidently seemed to think she had better finish business as speedily as possible and get hold of her oars. When a bicyclist gets even one foot on his pedal he is master of the situation; and it is so with a boatman, only he wants to get his hands on the oars, to be able to defy the winds and waves that seem ready to work his destruction. Our little post-mistress made things fly right lively. She tossed the money into the bottom of the boat, catching with the other hand her hat, which the wind seemed determined to take away, then grasped an oar, settled herself back, and when the wild winds made sport with her brown curly hair, she by sheer strength and skill made her boat spring almost as if it were a thing of life, and had wings. I was thinking about making mention of her wonderful ability, here in these pages, and inquired of the passengers how old she was. No one could tell. I did not dare disturb her with questions until she had her boat well under control, and then I ventured:

"Please, sis, how old are you?"

As the boat prepared to shoot off across the foamy crest of the waves, she threw her head back, looked in the direction whence the inquiry came, and for one brief moment I caught a full glance of her dark lustrous eyes. She wore a jaunty sailors' cap; and for convenience (probably more than any other reason) the sleeves of her dress were such as to show her beautifully rounded arms that handled the oars with such strength and skill. Her complexion was, of course, brown, from the sun and wind, and there was not a bit of paint used to make her whiter than God had seen fit. Oh, yes! I have quite an eye for feminine beauty, even if I am toward sixty; but, dear friends, there never was a *painted* woman, old or young, who could, in my estimation, approach this girl, grown up, as it were, with the winds and waves. Before she opened her mouth to make a reply I saw that for once in the world I had blundered. I called her "sis," thinking she was perhaps twelve or may be a little more. Instead of a "sis" she was a miss of sixteen or perhaps eighteen. She looked me full in the face, with a saucy twinkle in her dark eyes, and with a little bit, perhaps, of natural pride (and, by the way, she has about as much to be proud of as any woman I know of), she replied—well, what do you think she did say, any way? Only this: "It isn't any of your *business*, sir, how old I am."

It was now my turn to feel hurt, and I colored up a little. But as she disappeared—or, perhaps I should say, as the distance between us widened—she vouchsafed to me a bewitching smile that allayed any slight wound I may have felt in the words she used. The smile said to me, "Oh! you need not feel hurt, my good friend; I feel pleasant and neighborly toward you all the same, even if I do not choose just now to tell you that I am not quite so much of a little girl, after all, as some people think."

The passengers bantered me some, good-naturedly, and one of them told me that he felt sure she had no thought of being uncourteous. She naturally attracted considerable attention, and was used to banter with the passengers, and had gradually fallen into a way of being perhaps a trifle saucy, or into a way of speaking that might appear so. May God be praised that women are at this stage and *age* of the world making themselves useful and independent in honest and praiseworthy callings, even

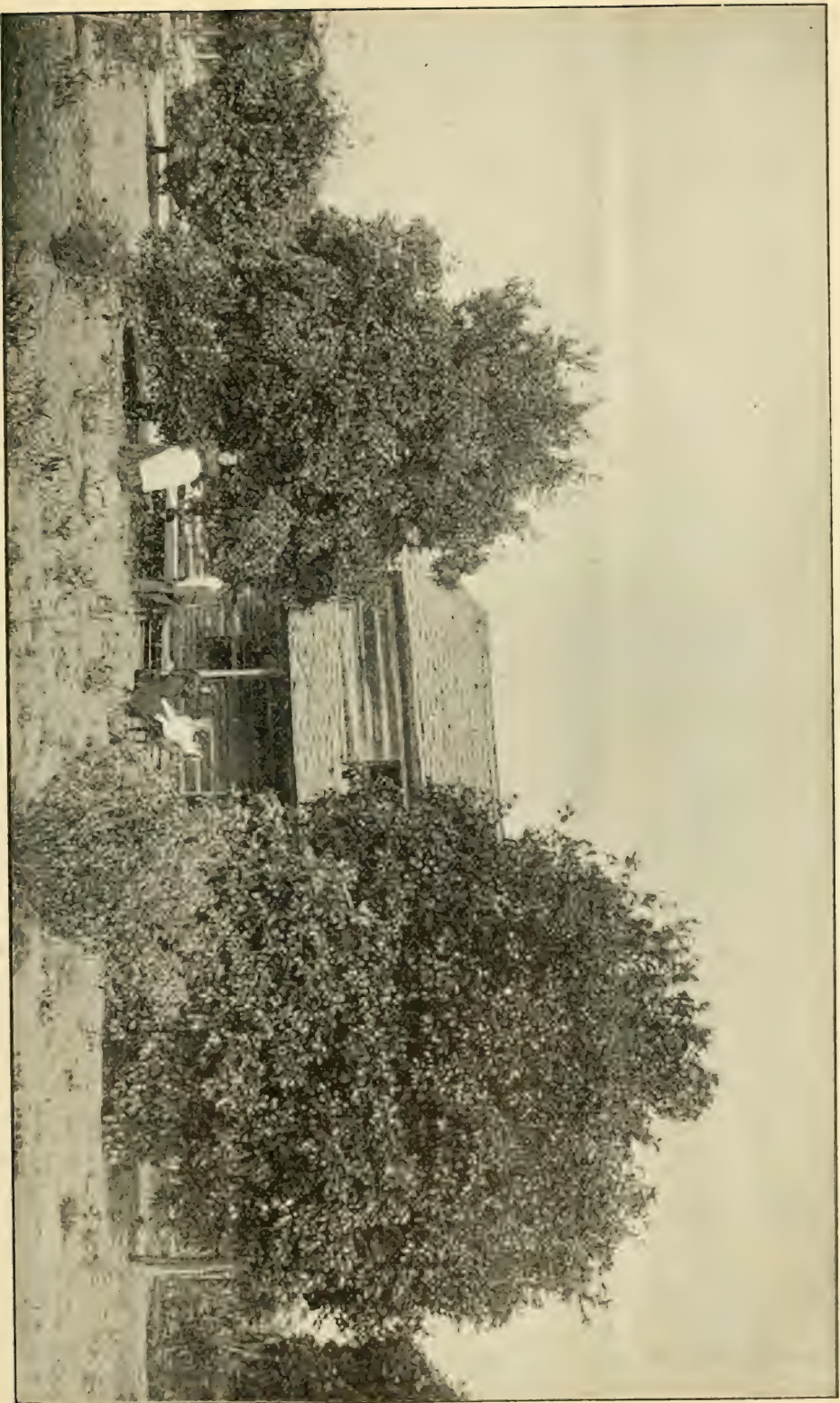
if their calling does sometimes bring them not only out into the open air, before the curious gaze of mankind; and may God help *mankind* at large to regard all such women as they would their own sisters and their own daughters; and may we rejoice that it is our privilege to stand before them to protect them, and to *defend* them, if need be, from every thing that is evil or unholy.

My next visit was at Thonototassa. Unless you have had a little practice in pronouncing this name you will have a good deal of difficulty in speaking it as the Florida people do. But our good friend Mrs. W. H. Stacey helped me to learn it by suggesting that I pronounce the first two syllables—*tho-no*—as one syllable; then pronounce the rest of the word as it is spelled, and then you have it—*Th'no-to-tas-sa*.

To introduce friend Stacey and his wife I shall have to tell you that, when O. O. Poppleton first spent a winter in Florida, he made his stopping place with these good people. Now, friend P. could not be anywhere very long without talking bees; and he not only *talked* bees, but he *made* a bee-hive, then a honey-extractor, and finally a foot-power buzz saw, without even a carpenter shop or tinshop to aid him; and the very extractor and buzz-saw were shown to me.

The Staceys are great poultry-keepers. Before I had hardly set foot in the dooryard I was charmed by beautiful flocks of White Leghorns. Each flock has its appropriate yard. Before I left I was permitted to assist in gathering the eggs. I have had all my life visions of a model poultry-establishment, with every thing so neat and tidy that it would be an unmixed pleasure to tend the "biddies" and gather the eggs. And here I found my dream almost realized. Mrs. Stacey suggested that, before I said too much about *their* poultry-establishment, I should pay a visit to their neighbor, Rev. J. H. Waddell. When we arrived, the pastor himself was absent; but his good wife very soon enlisted not only my whole attention but my enthusiasm by their beautiful home and their poultry-appliances. Why, the *whole establishment* looked as if it had been swept and dusted that very morning. The nests and the roosts, and every thing pertaining to Mrs. W.'s White Leghorns, was so unique and tidy that I turned to her and inquired whether she had really taught her fowls to wipe their feet on the doormat before they got into the nests. Now, there is *not* a very large amount of money laid out around the Waddell establishment. When I made some inquiries as to how many men they employed, our hostess replied she believed the pastor himself was the only *hired man* they had about the premises at that time. Pretty soon we found him coming along with a cartload of old brush and rubbish that he had been gathering up. Do you know, dear readers, that some people have a knack of keeping things neat and tidy, without paying out any money of any account? Others will keep a lot of help, and even then seem often worried with many cares and anxieties. I am afraid I belong to the latter class.

Now, ever since that pleasant visit I have been afraid that, in writing up this pastor's home away back in the Florida wilderness, I should make too long a story of it; so I am going to stop right here by simply saying that it was the pleasantest home I ever saw, either in California, Arizona, down south, up north, and I will not except even any thing I saw away down east in *Boston*. I have never seen any thing *anywhere* that so satisfied and refreshed my longings for a model home as this one of which I have been telling. Perhaps one secret of it is, the clean white sand that nature



THE GRAPE-FRUIT TREE THAT BORE \$30 WORTH OF FRUIT IN A SINGLE SEASON.

has spread so lavishly around this little home. But beautiful shrubs, plants, and grassy lawns were to be seen almost everywhere. And then a little gem of a drive went down through the wild tangled woods, and led along by a tiny lake, where the wavelets of pure crystal water rippled up against the soft clean sandy beach.

Two or three times I have been inclined to say that, so far as producing great crops is concerned, Florida is away behind the North; and I have heard others say that, without vast quantities of manure or expensive fertilizer, you can not raise a thing. Now, wait a bit. Friend Stacey pointed to a large grape-fruit tree standing at one corner of the porch, and incidentally remarked that he received \$90 for one single crop from that tree. I sprang to my feet in surprise. Said I:

"Now, friend Stacey, I have been greatly puzzled about this matter of fertilizing orange-trees, grape-fruit, limes, etc. What fertilizer, and how much, did you put around this tree?"

"Didn't put a bit of fertilizer of any kind around it, neither that year nor any other year."

"But, my dear friend, you certainly did give it some extra cultivation of some kind."

"Didn't give it any sort of cultivation, neither that year nor any other year. It just stood there and 'grew itself.'"

I walked around the tree, looked it over, asked how old it was, etc. Now, friends, when you hear people talk about Florida soil, and that there won't any thing grow down there, and that you can't get any money for your crop, just remember what I have told you, and take a look at the preceding picture.

Please remember, also, there were not any freights nor commissions to be taken out of the \$90. Our friend got the \$90 in cash for the fruit, right in his own dooryard. There is a part of this conversation that I once decided I would not tell anybody; but since several have complained about my extravagant stories in regard to Florida, I think I will tell it after all. Friend Stacey said that a neighbor of his got \$150 for the crop of fruit from *one single tree*. You get a few glimpses of the house where our good friends live. Now, right near by friend Stacey's is a cypress swamp, and the most beautiful cypress-trees are now being cut and taken to a sawmill near by. This straight fine cypress lumber is the kind used for greenhouse timbers, you know—rafters, etc. Well, friend S. actually "whittled out" his dwellinghouse from this cypress timber. He split out the boards and the shingles, and built a pretty home before sawmills were ever brought into that region. He is also quite a gardener. He is testing lathyrus and many of the other new plants. Almost everywhere in Florida they say they can not raise peas; but friend Stacey tells me he had a fine crop of Alaska peas, and they were picked before Christmas. The principal fertilizers used in his vicinity are cottonseed meal and sulphate of potash. This was all that was needed to get crops of almost every thing in that locality. Of course, they are beekeepers, but the locality has not ever given any very great crops of honey.

A Northerner is often greatly puzzled, and sometimes smiles right out loud, at the queer names and expressions used in Florida. For instance, a piece of light-wood means a blackened knot of pitch pine, almost as heavy as cast iron. A beautiful plump-looking bird is called a "poor Joe;" and the live-oaks that flourish in Florida are about the same as those I have several times described in California. Now you can understand the following which Florida folks sometimes repeat, to the perplexity of their northern visitors: "You take a chunk of heavy light-wood and throw it at a

fat poor Joe sitting on the limb of a dead live-oak." This is almost as bad as the expression, "Blackberries are always green when they are red."

Friend Stacey and his wife have some wonderful collections of minerals. In the vicinity of Tampa, along the shores of Tampa Bay, they find queer minerals called geodes, and chalcedony. The geode is a peculiar flinty quartz-like stone that is hollow inside, and filled with water. The crystallization, both on the outside and inside, reminds one of beautiful frostwork. How did the hollow come inside of the flinty stone? and, finally, how did this hollow come to be partially filled with water? The quartz is so transparent that, by holding it up to the light, you can see the water and the bubble of air that partly fills the cavity.



Thou shalt not covet.—Ex. 20 : 17.

On page 416, May 15, I spoke of a shell mound near friend King's. As we approached the excavation made by the railroad company in digging out the shells, friend K. was explaining to me that the excavating and throwing the shells on to the cars was generally all done by colored men. As we neared the scene of operations we noticed the men were not at work. Friend King asked a colored man the reason, and he replied that "yesterday was pay-day." After he was out of hearing I inquired why they could not work, even if yesterday was pay-day. The answer was:

"Why, after these people get their pay they will not work any more until they get rid of their money. In a few minutes we shall probably see the sad way in which they manage to get relieved of their funds before they can go to work again."

Right there was being enacted the sad scene right before our eyes: A sort of table or work-bench was placed in the shade of a tree. The men were all gathered around it; and so intent were they on their gambling that they hardly noticed that strangers were looking on at all. There was one rude hut or building in the camp, and a forlorn-looking woman was there to cook and prepare their meals.

"But how long does this gambling last, friend King? I suppose the dull ones, of course, in the game, or perhaps the most conscientious of the lot, will lose their money first, and drop out. In this way the circle draws down narrower and narrower until there are finally only two contestants, and in the end *one man*, the worst *villain* in the lot, probably, pockets all the money the rest have earned during the days and weeks that are past."

My companion turned around and looked at me, perhaps in a little surprise that I should know how these people managed when I was so little acquainted with them. I went on:

"But doesn't the final ending-up of the game result in quarrels and fights?"

"That is just the way it does end, Mr. Root; and the one who gets the money from all the rest has to run off, a good many times, to escape their anger. Of course, there is more or less cheating and sharp practicing, as there always is in this work, and bloodshed is not unusual at the winding-up."

Now, dear reader, this kind of work goes on and on in this land of ours so full of Sunday-

schools and churches. I could not discover that any minister, missionary, or pastor, either black or white, was making any protest against it. The railroad company probably did not interfere so long as the darkies kept the cars loaded as fast as they were wanted. If they spent so much time in gambling they could not do this, then I suppose more men or different men were put on. These colored laborers were mostly without families. They were a sort of adventurous, irresponsible set. Some of them were accustomed to change their locality as soon as they got into some trouble; and the vast extent of wilderness and swamps all about them made it an easy matter to evade the law.

Not long before, one of this same class of fellows shot a white man in a quarrel. He ran for the woods, but nobody put after him; and the locality was so far from towns or cities that it was almost out of the question to think of sending an officer of the law after him. Now, I do not mean to say that nothing is being done in Florida for the colored people. Again and again I was obliged to admire, reverence, and respect the efforts that are being made for the education and Christianizing of the race. Several times I walked through a part of different towns and cities allotted to the colored people. I saw the mothers and children. I saw the colored pastors making their calls, taking down the names of the people, number of children, ages, etc., and asking what church they attended. I believe these colored pastors are, for the most part, good men; and while I felt sad to see these men spending their money in gambling, I could not but reflect that they were by no means the only transgressors in breaking that last and important commandment. Let us look at it. These men worked side by side day after day, through the hot sun, and most of them did good honest day's work. One would suppose they might have a kindly feeling, one toward another; and that each one might feel happy, when payday came, in seeing his comrade get the reward of his toil. What sort of disposition or heart must a man have when he would voluntarily appropriate the wages of a fellow-workman? If he took it while this brother was asleep, it would be robbery. I do not know just what the laws of our land are in regard to gambling; but I do know that laws have been framed, time and again, in the endeavor to put it down. We respect in theory if not in practice the command, "Thou shalt not covet thy neighbor's house," etc. Is it not a fact that almost all the wrong-doing and wickedness in this world come about because men covet that which does not belong to them? Why, how can any man, woman, or child deliberately plan to appropriate that for which a neighbor or companion has worked hard? Why should we not have as much interest in seeing that our neighbor has his just rights as that we have our own rights and just dues? Well, it is because we are imperfect and sinful. It is because of the inborn depravity of humanity. I say *we*, because I am every day and almost every hour conscious that this sin of covetousness lurks in my own heart as well as in the hearts of others. I have worked and prayed industriously for years and years, and yet I am selfish still. God have mercy on *me* a sinner! In one sense, however, I am not covetous. I despise and abhor the man who would take from his neighbor without just and fair equivalent. I loathe and abhor the sight of a pack of cards, just because they have been the recognized tools of this kind of genteel highway robbery for ages and ages past. A certain class of people seem to be continually striving to make card-playing respectable. They bring it into

their homes, and they engage in games of cards with their own children. Sometimes they succeed, *apparently*, in proving that this terrible work is harmless and innocent. A man well to do once put a billiard-table in his barn, and told his boys that, when they wished to play billiards, to play at home. "Don't go off to doggeries; don't go in company with the evil and vicious. Play at home." Somebody, in telling of the above, claimed that the father had succeeded. His boys played billiards in the barn, and grew up to be straight, square men.

"Hold on, my friend," remarked a bystander. "May be what you have just said is all true—at least, we will let it pass for truth just now. But I happen to know a neighbor's boy—a child of Christian parents—one who started in church and Sunday-school, and who, I verily believe, might have been a good man this day had it not been for that billiard-table in the neighbor's barn. The boy started *there*. He started there because it was made respectable. He got his taste for gambling *then* and *there*; but now he is nearing a gambler's and a drunkard's grave. That billiard-table in the neighbor's barn spoiled him for every thing good and useful."

We pity, censure, and despise the poor colored laborers who have lost their money in gambling year after year as fast as they can earn it. But, dear friends, is it not true that they are only a little more bold and reckless in their manner of transgressing and breaking this tenth commandment?

The daily papers of this whole land of ours are just now teeming with accounts of hundreds and thousands that have been stolen on the sly. A good deal of the time the money is taken from the government by some sharp management. Men get into office by bribery, and then they seem to think it is expected as a matter of course they will get their money back that they have expended, by some hook or crook. Officers of the law agree to let offenders go on in their transgression providing they *pay* them enough, etc. Are there no people left who do not want and can not be hired to touch that which justly belongs to some fellow-man? or that which justly belongs to the United States and our public institutions? Oh, yes! there are a good many people; but there are so many things to be seen to and looked after, with all the machinery and multiplication of modern industries, that good people have not time to look after every thing; and a good many of them have such a dislike for going down into the filth and wickedness to straighten things up that they leave it for somebody else to do. Here and there a wicked man is converted to Christ Jesus, and loves his Savior more than he loves any thing Satan has to offer. Even should the prince of darkness say, "Here, I will give you the *whole world* if you will fall down and worship me," we have instances of men who stand firm and steadfast at their lives, who never yield to Satan one inch;* but as

* Yes, I have met quite a good many men who value a clear conscience, as they go to bed at night, more than they value the money they may have received during the day. Why, a good many times people have come to me, saying, "Mr. Root, you paid me a little more than you ought, in that deal yesterday."

When I look up and laugh at them (I always feel like laughing in real good nature and joy when that unselfish feature of humanity comes out), and tell them I guess it is all right as it is, sometimes they will say, "Well, did you get rid of the stuff so as to come out whole?"

If I hesitate a little, down goes the hand of my neighbor into his pocket, and out comes a handful of silver.

time goes on it seems almost as if the dens of wickedness furnish *bad* men faster than all the churches and missionaries can furnish *good* men; and the saints are, to use a slang phrase, "snowed under." But they need not be. God's promises are to the effect that one who is consistent and faithful shall be more than a match for a hundred of the vicious and covetous.

But you will notice that this text of ours does not end up by saying, "Thou shalt not covet thy neighbor's money." It does not say any thing about money. It commences by saying you shall not want his house. It is a sin to be envious because your neighbor has a better house than you have. And then after mentioning the house it speaks next of the neighbor's wife. I can remember that it used to seem singular and strange that this enumeration should come in just this order. But Satan knows his business. He knows that many a man might stand firm and immovable so long as money or property only was concerned. The man who wrongs his neighbor out of money, or even out of his house and home, can, if he repents, give back the money with interest. He can give back his house and home, or a better one; but one who steals from his neighbor the wife and mother, can never restore that home as it was before. He has not only taken the path that leads down to hell, as the scriptures tell us, but he has led another human being down to hell along with him. And who shall tell of the wreck and ruin that follow on for generation after generation?

It is a terrible thing to want any thing that belongs to your neighbor—of course, I mean in the sense of wanting it without giving for it any proper equivalent; and it is the sin and shame of our nation to-day that our children are permitted to grow up without more careful training in regard to this one matter of respecting the rights of others. If everybody loved and enjoyed the privilege of sacredly and solemnly living up to this tenth commandment this world of ours would be a heaven here below. But, on the other hand, if mankind continue to grow up, not only wanting but greedily appropriating all they can get hold of, it will make this world of ours—nay, to come nearer home, this United States of America—a veritable hell on earth. If we continue to look up to men, to respect them, and to treat them with courtesy—men who would, without doubt, do just as the poor darkies are doing down in that shell mound, pocketing the earnings of the *whole crowd* if they can get it—then our nation is surely doomed.

A few days ago, when it was first announced that one of the great political parties of Ohio had nominated a man as candidate for govern-

or, the first comments I heard were disapproval; and the principal reasons for the disapproval were, that the politicians had nominated a *millionaire* for the office. It seemed as if the people of Ohio—at least a considerable part of them—took it for granted we did not want a millionaire. I do not know but they thought a man ought to be *ashamed* of being a millionaire. Why? Well, many good people have got into a way of thinking that a man has no business in being a millionaire—at least, a certain class are taking it for granted that he became a millionaire a good deal in the same way the boss gambler in that crowd of darkies succeeds in taking the entire earnings of all the rest of the crowd; and I do not know but they think (like this same boss darkey) after he has got it all, to be consistent he should run away and hide himself, or get among a new crowd that does not know any thing about his past record. I hope you know, dear friends, I do not wish to find fault with honest industry; neither do I wish to complain of those who seem to have ability to manage great numbers of men and hundreds and thousands of dollars, and also to manage large capital. But I am *hungering and thirsting and praying* that our nation of people, before they go a step further, may stop and consider this last commandment; that they may, on bended knee, ask God to take away all disposition or longing for their neighbor's house, or his wife, his maid-servant, his ox, his ass, or any thing that *belongs* to the neighbor.



A VISIT TO MATTHEW CRAWFORD'S.

During one of those exceedingly hot days that ushered in this month (in fact, it was on the very first day of the month) I took a notion to pay a visit to Matthew Crawford, the strawberry-grower. I knew it was a very hot day for a wheel-ride. Hot days have never very seriously interfered with my enjoyment on the wheel so far, and I thought I would take the chances. During the fore part of the route I enjoyed it as usual; but I stopped and sat down and rested by the numerous soft-water springs along the way, and sometimes stretched myself out full length on the green grass in the shade of the beautiful trees. But before the 20 miles were up I had become pretty tired. On the very summit of one of the great hills near Northampton, Summit Co., I sat down in a pretty dooryard to rest. Looking up I was surprised to see red (the red kind, you know) cherries, black cherries, plums, peaches, and almost all kinds of fruit, apparently unharmed by frost. This was clearly the result of the elevation. The cold air could run down on all sides into the valleys, away down below, and this gave that fruit-orchard on the hill almost perfect protection from the ravages of the frost. Here is a hint to owners of hilltops. And what is more beautiful than to see the summit of these great mounds made by nature covered with fruit-trees, and loaded with fruit, when the valleys and plains are destitute on account of the frost?

The day before I took my trip, Ernest took hold of the chain of my wheel and said, "Father, look here; you had better take that wheel right in to Henry now, and have him take up the slack in that chain. If you neglect it, the chain will be thrown off in going down

"Look here, Mr. Root, we know you are generous and liberal; but we don't want to take advantage of your good nature. Let me pay you back enough so you will come out whole in the transaction, any way."

How much good it does me to meet a man like that! We say to ourselves, "Well, there is one man at least that we can remember never needs watching." Pretty soon we find another, then another; and by and by we discover there is quite a little band of honest, unselfish neighbors around us—people who will not overreach and take more than their share, no matter how good a chance may fall in their way. We can leave our tools and produce out in the fields in such a neighborhood. We need not waste our time in fussing with padlocks on the tool-house, poultry-house, and granary, for such a spirit in the hearts of mankind is more secure and lasting than all the padlocks and iron safes that were ever devised by the art of man. While I write, it seems to me that somebody, years ago, said what I am trying to say, better than I can ever say it myself. "Behold, how good and how pleasant it is for brethren to dwell together in unity!"—PSALM 133:1.

a hill, and you may find yourself in a worse predicament than you have ever yet been in all your wheeling adventures."

Now, I intended to do exactly as Ernest suggested, but it was overlooked. In going down a hill near Ghent—sure enough, off went the chain. At first I felt a good deal distressed to find the cranks of my wheel turn loose, and give me no control whatever over its motions or speed. The chain, however, seemed to keep out of the machinery until I almost touched the bottom, then it caught; but as it was soft sand, the rear wheel slid like a sled-runner until the machine slacked up so I could get off. I felt like calling myself a good many names for my stupidity and neglect. I hunted a shady place, then began feeling in my pockets for my wrench. The pump and oil-can were all right, but "nary a wrench." I rarely carry my tool-bag, because I try to dispense with every ounce in weight, especially during a very hot day. Then I remembered laying the wrench down on the window-sill at the factory, 15 miles away. I put the chain back in its place, however, and concluded it would probably go all right if I walked down steep hills. I went down several hills of moderate decline, and every thing seemed to be safe and sound until I ventured on one that I felt on the start was a little bit risky. When half way down, off went the chain again. With no back pedaling, of course the wheel began to go faster and faster. I dodged innumerable rocks, set my teeth, and held the handle-bars with a grip of iron. All this time the chain was clattering; but finally it caught in the sprocket-wheel, and there was a zip, and a rattling of steel, then I heard the chain fall to the ground. It was broken. It made me think of a fractious colt that had succeeded in kicking loose from sulky, whiffletree, and even the traces. I felt like yelling to somebody to "stop us." But there was no one in sight. My 18-lb. Rambler seemed to be a "rambler" indeed; and even when it got on level ground it would not stop. It went up another hill and down on the other side. I began to think of Darius Green and his flying-machine. Finally the wheel gradually slacked up, and I got off. I had been thinking that morning that I needed a good sweat; and I got it that time. It was not the sweat of physical exertion, however, as much as it was *mental anxiety*; and then I found I should have to walk the rest of the way during that terribly hot sultry noontime. I could not ride up hill without a chain; and I could not ride down hill—at least if it was very *much* down—because I was afraid. But I did sail along nicely down all gentle inclines, and even on a rather level road; and with a brisk wind behind me I made pretty fair speed. At one point I came down a long gradual hill. At the bottom was a bridge, but the way was blocked by a peddler's wagon and a farmer. As I could not slow up I yelled at them all the way down hill to "clear the track." They evidently, however, could not see any reason why I should not slack up. But when I got near to them I explained to them that my wheel was broken, and that I had no control over it. Doubtless it seemed to them a little strange that I should be coming up hill at such speed as that without doing any pedaling. They moved, however, just in time to let me squeeze between the two vehicles by the pretty sharp guiding of my steed.

Beyond the hill I found a blacksmith shop, and we two—the blacksmith and I—managed to mend the Rambler chain by taking out one link. He was a little slow on deciding just what price he ought to charge. Finally he said he guessed the use of his tools and his time might be worth a *dime*. I gave him a quarter,

and thanked him besides, and went away with the pleasant reflection that there were at least a *few* people in this world who do not want all they can get in every little deal. Yes, I was cheered by another pleasant reflection too: An 18-lb. Rambler wheel, without any chain or crank, would help me quite a little on my journey. But after you have ridden a mile or two without them, then you can realize as never before what a *superb* luxury it is to make the little light machine fly up hill and down, either slow or fast as you choose.

Friend Crawford was fixing a posy-bed in the shade of a tree, for Mrs. C. He is just about my age, and he said he had lately been deciding that he wanted to take life a little easier than he had been doing during the years past. I told him that was my sentiment exactly. Then we went out where three bright muscular young men were taking care of the strawberries. Two of them were his sons. My eyes soon caught a glimpse of the new Zephaniah Breed weeder. With this machine one of the boys had actually gone over two acres of strawberries newly set, firmed up the earth in the most beautiful manner, and had not, so far as I could see, torn up a single plant. Why, if a couple of men with cultivators and hoes—yes, and rakes too—had worked two or three days on that two acres of strawberries they could not have fixed them any better than young Crawford did in perhaps two hours. And then the boys had got hold of some new-fashioned hoes which I greatly admired. You can make one by taking a common hoe and cutting off a portion of the steel in a line from one of the corners back toward the shank. It leaves an acute angle of steel at the corner that will go in between the plants, and mellow up the soil, or yank out a little weed. The hoe is just as good for all ordinary purposes as ever, has a sharp corner like a trowel, to get in where a common hoe could not. The frost had spoiled the greater part of their crop of berries; but they are going ahead with new plantations all the same.

§A RUNNERLESS STRAWBERRY

attracted my attention. The plant just keeps growing in great clumps or crowns; and if you make the ground rich enough, and have the plants far enough apart, you can, no doubt, get a quart or two from each plant. To get new settings you dig up the old plant and divide it up. I saw a row of nine young ones just made by splitting up one old plant. Another thing, you can put your strawberries of this variety in rows so as to cultivate both ways. I think this variety has never yet been offered for sale.

Friend Crawford finds it quite convenient to combine onions and strawberries. I don't mean that he mixes them up on the table, but just in growing them out in the fields; and, strange to tell, he has sort o' settled down on White Multipliers and White Top onions, just exactly as I have, and here he is only about 20 miles away, and we were sold out and seeking everywhere, while he was selling his crop for less than half what it was worth because he did not know where to dispose of it. Don't you see, friends, that it pays to be neighborly? Go around and see what others are doing in your line of business, and talk matters over.

THE ONION-MIDGE OF NORTHERN OHIO, OR NORTHERN THRIP OF THE WEST.

□ Mr. A. I. Root:—I wish to say that your talks on gardening, etc., are very interesting to me. It was through your note on the onion-midge that I learned what ailed my crop last year. My onions began to die during the drouth early in the season, that I thought were all right. I

could not tell what was the matter with my late planting, for the weather seemed favorable. I looked, and found the onions covered with the midge. I did not make over a third of a crop. In August we planted two patches of winter onions—No. 1 where the spring crop was grown; No. 2, 200 yards from where onions had been grown for several years. Patch No. 1 died nearly to the ground before winter, after they were knee high. Patch No. 2 was injured about half as much as No. 1. I sowed 8 oz. of Pearl seed the last of August; another 8 oz. Sept. 15th, in adjoining beds, 175 yards away from where onions had ever grown. The first lot of plants were killed nearly to the ground before winter, and the others were practically uninjured. A part of each lot were transplanted in December. Three-fourths of the first lot, both transplanted and in the bed, were killed by the winter. The second lot was uninjured. This spring the first lot was the first to be injured by the midge, except some of lot two that were planted beside the winter onions above mentioned, and began to show the effects of their work as early as any. These pests are in the ground in old onion-patches, also in the onions, sets, and buttons. But in the case of the seed-beds, where did they come from?

I sprayed a few onions with kerosene emulsion. That seemed to do some good; but thousands of insects came from the adjoining rows and covered them again. I will try acid on some of my later onions. Our druggist charges 45 cts. per lb. for carbolic acid. I fear that is too expensive to be used extensively. Then I fear the applications will have to be repeated frequently to kill those that come from the ground; or are they all on the plants while they are growing? I wish our experimenters would learn of some cheap effective way to get rid of this pest. It is my opinion that treatment, to be successful, must be preventive. I would suggest working the ground during freezing weather, or planting winter onions about the patch in August, then pulling and burning late in the fall, when they are covered with the insects. If water will destroy the midge, why would it not be a good plan to flood both patch and seed-bed, where possible, just before transplanting? The onion is my best-paying crop, but the midge will destroy three-fourths of it this year. I shall have to abandon the crop entirely if I can not destroy the little fellows.

Malvern, Ark., May 16. P. C. SHOCKEY.

The above was at once forwarded to our Ohio Experiment Station, and below is their reply:

Friend Root:—Our Prof. Webster, who has done considerable work with the insect referred to, refers me to a bulletin recently published by the Iowa Experiment Station, in which Prof. Osborne gives a description of the insect, under the name of the "Western Onion Thrip." It is one of those insects which do not have a particular liking for any special plant, but has been found on squash, turnip, catnip, sweet clover, cucumber, and many other plants. The eggs are laid beneath the surface of the leaf; and as soon as they hatch they begin to feed on the plant-tissue. They evidently grow quite rapidly, and there are, in all probability, a number of generations each year. They live through the winter in both the larval and adult form, and begin to multiply as soon as vegetation is ready for them.

The insect has never yet, except in exceptional cases, been so troublesome but that successful remedies have been found to meet it; but Prof. Osborne thinks that kerosene emulsion should be one of the first things to be tried. This will kill the thrips whenever it hits them; but there will be many that are in between the

leaves that will escape, and, with those hatching out, it would probably take several applications; and as the insect flies quite readily it would probably come from other places. To pull and burn the plants when badly infested would check them; and especially would this be advisable early in the season, when they commence, as they did in the onion-fields of Lodi and Creston, in spots, and gradually spread over the field.

As the onion crop is such a valuable one it will pay to do more than ordinary work in fighting the pest; and the grower who watches closely and carefully for the first appearance of it, and then fights it from the start, will have the best success; but as it is an insect that has so many food-plants, it may be only a condition that forces it to feed upon the onion. It is evident that these insects seek succulent plants, and it may be that only in a dry season will it prove serious to the onion. Bulletin No. 27, of Iowa Experiment Station, contains quite an account of the insect, and can be obtained by sending for it. The address is, Experiment Station, Ames, Iowa. E. C. GREEN.

Wooster, O., May 3.

A visitor at our onion-beds here has just now, June 1, shown me that the midge or thrip has started in on our American Pearl onions. As we are now marketing them, however, they will not be likely to do us serious harm. Should the present drouth continue, however, I greatly fear a repetition of the troubles of last year. We are glad to get the facts given in both the above letters, but regret to know the insect has been doing mischief over localities so widely separated. In the onion-gardens at Creston, Wayne Co., O., they nearly ruined the crop. One of the owners, a Mr. Jordan, told me it was his belief they all wintered over in some old onions left in the ground over winter to produce sets. This agrees, you will notice, with the statement of friend Shockey. We have never found them on our Egyptian or winter onions; but they finish maturing their sets, usually, before the midge gets to be very bad. At the Lodi onion-gardens, a few miles from Creston, it has been for some years their custom to clear off every thing in the shape of vegetable growth from their grounds in the fall, and burn all rubbish. This, the men told me, was to prevent insects, fungoid diseases, etc., from being carried over from one season to another. Friend Shockey, you will notice, *also* suggests pulling and burning late in the fall. Can some one tell us whether flooding has ever been tried? The most successful celery and onion farms at the present time have arrangements for irrigation that could be modified so as to flood the land in the winter, without very much trouble.

OXYDONOR AND ELECTROPOISE.

BLUNDERERS AND PLUNDERERS.

The following is from the Rev. C. N. Pond, of Oberlin, O., who has been for many years connected with the Ohio Sunday-school Association, and is also recognized as a contributor to several of our religious periodicals. He is also well versed in chemistry and electricity. I have asked him to examine the advertisements and circulars, and give us his opinion. Here is what he says:

Dear Brother Root:—The documents you sent I have carefully looked over; also some directly from the Oxydonor office. The claims made are simply astounding. "Makes you absolute master of disease." "It will make you as absolutely independent of disease as if it did not exist." "It is *per se* more

than paramount to all else man's knowledge affords," etc.

From one of the Oxydonor tracts I conclude that the Electropoise is the same thing, but has passed into other hands, and Oxydonor Victory now fights its former self, "now in the hands and control of the Philistines who propose to make war upon humanity with that name." I mean that the entire matter of all the circulars of both indicates identity, but with a transfer and fight later. One of the publications particularly indicates the change.

The announcements of Electropoise and Oxydonor Victory are not founded upon any known principle of science or health. They lay claim to "natural laws heretofore unknown," and promise to cure almost every disease or afflicted humanity. The circulars and pamphlets bear the stamp of unmitigated charlatany, as devices to get money from needy sufferers, without rendering the slightest good in return. They do harm, because, though in some instances there is seeming relief, yet the inevitable effect in general must be to burden the afflicted by expense without profit, by raising hopes which can end only in disappointment, and by turning attention from actual methods of cure. Many honest testimonials can be obtained for any device whatsoever, because, from a given number of sufferers there are always some about to recover, and some who need simply to have their minds turned into a new channel of hope. Such was the case with so-called "Christian science," which was neither Christian nor scientific, and is the case with every patent nostrum palmed off upon the public. But as for any actual curative agency in Electropoise or Oxydonor, I should as confidently expect it in a tin whistle or a lucifer match. C. N. POND.

Oberlin, O., May 29.

We copy the following from the *Rural New-Yorker*:

HEALTH CURRENTS.

Four weeks ago, on page 316, we gave our opinion of the "electropoise" which is being advertised as a great "cure-all." By turning back to that page you will see that this device is a cheap little cylinder of nickel, filled with a mixture of sulphur and graphite, with a long cord connected with a garter. The estimated cost of the thing is under 50 cents, and the price is \$25. The points we tried to make were these: 1. The difference between price and cost is altogether too great. 2. We don't believe the sulphur and the graphite will set up any "action" that is going to do a sick person any permanent good. Our opinion, then, was that a nest-egg or a horse-chestnut carried in the pocket would prove just as scientific a cure. Early this week we received this note from the Medical Director of the company handling this device:

A lady brought us in an abstract from the *The R. N.-Y.* of May 11, containing an ignorant and annoying attack upon "the electropoise." "The electropoise" is not a fraud, no matter how apparently simple the contents and construction of the polarizer. When the polarizer is placed in cold water, etc., and the plate is applied to the warm surface of the bodies of men or animals, a thermo-electrical current is started, and enters the body. This current has a most remarkable effect upon the circulation, nervous system, and nutrition, thereby effecting unusual and easy cures in many diseases which can not be reached by the usual methods. I will call upon you.

Agreeably to his promise, this gentleman called, accompanied by the manager of the company—bringing an "electropoise" along with him. They admitted that our statement as to the make-up and cost of the device is correct—it is a 50-cent article sold for \$25.

Now, this is about the way we talked to these men: "Our present opinion is, gentlemen, that this 'electropoise' is a first-class 'fad.' You charge for it 50 times what it costs, and you make for it most extravagant claims which the ablest scientific men we know declare to be ridiculous nonsense. At the same time, we are always open to conviction. The *R. N.-Y.* is too big a paper to permit any bigotry or false prejudice to sway its opinion. While you can't buy our opinion for \$1,000.00, if you will give us proof that your claims are correct, we will help you place an 'electropoise' in the hands of every sick man in the country."

"That's just what we came to do," said the manager, "and here is your proof in these hundreds of printed testimonials from those who have used the 'poise.'"

"We don't care any thing about your printed testimonials. Admitting that these people think this 'poise' helped them, how do they know that it was

not some change of diet, or way of living, that did the business? What we call proof is a scientific demonstration that this 'force' you talk about, actually does cure, and an explanation of the way it cures and how it affects the system."

"We can't explain it. We only know that it does cure. We have a theory about it, however. Will you let us put one on you to illustrate it?"

"Certainly!"

A piece of ice was taken out of the water-tank. The nickel case of the "electropoise" was put on this ice, and the whole wrapped in paper. The garter at the end of the cord was fastened to the writer's wrist to the satisfaction of the medical director, and we all waited for the appearance of the thermo-electrical current. While it was preparing to start, the manager explained the philosophy of this new system of curing. Put in the simplest way possible, this is what we understood him to say:

When put in cold water, the sulphur and graphite in the cylinder start up some sort of chemical action, which is communicated by means of the cord and garter into the system of the person connected with the 'poise. Whether this "charge" is ordinary electricity or not, nobody seems to know. After entering the system, it very conveniently goes to the spinal cord, and thence through the nerves all over the body, quickening all the processes of digestion and assimilation, and thus (of course) curing disease by mending all the broken-down parts of the body and causing all the organs to do perfect work in nourishing and taking off wastes. Somehow or other, all the wise men of the ages have skipped this great principle heretofore, and most of the scientists now on earth are so envious and afraid that this "thermo-electrical current" will absolutely ruin the business of doctors, druggists, and undertakers, that they will persist in calling the "electropoise" a humbug, just as they did the electric brushes and other fads which flourished so 15 years ago, and have long since died out!

All this time I was waiting for that current to start. To cheer me along, the manager said that the current could cure catarrh, deafness, old sores of many years' standing, bony growth at the joints, that it would prevent consumption in its early stages, relieve dyspepsia or nervous prostration, and that it will make seeds and plants grow faster! Now, I am deaf, and have had catarrh; my fingers have been frozen, I have five bad scars on my hands; there is more or less malaria near where I live; I am always afraid that the baby will get hold of some tuberculous milk and drink it; I am sure to have a headache when I eat too much dinner; I am threatened with nervous prostration when I see how "Preservaline" and the "Creamery Shark" are permitted to advertise, and my lima beans simply won't start this year. Therefore you can imagine that I was mighty anxious for that "current" to start and put an end to these various troubles. But it didn't! I felt no effect whatever, and at last they took it off—putting me down, I fear, as a very tough subject. To tell the truth, I did expect to feel some thing like a mild shock of electricity, as I have no doubt something of that sort could be generated in this way. I simply did not feel it. We have now put the "electropoise" in the hands of one who has been an invalid for many years. He will give it a fair trial, and we shall all know the results. Needless to say, we have no faith in it whatever. Possibly we were wrong in saying that it is no better than a dried horse-chestnut, for undoubtedly there may be generated some slight chemical action. That this "current" will act all through the body, as these people claim, we do not believe, any more than we believe that skunk's oil will cure deafness because the skunk has a very acute sense of hearing. We have tried that remedy too.

But stop! Hold on now! We don't want you to go away thinking that we are down on all new things and influences that we can't fully explain! Not at all. We have had quite a little experience with a "thermo-mental current," and we have no objection to having every reader test it. To test it thoroughly, you must send *The R. N.-Y.* for at least one year into some family that does not now read a first-class agricultural paper. At this end of the line, we guarantee to make things sulphurous for all the rogues. In place of using graphite, we will make a great fight for the farmers' rights and try to put cool water on the hot-heads. The result of this combination will be a "thermo-mental current" of improvement which follows the mail right into that family, and works all through it, starting all the members up to better ideas of farming and living.

I may remark that the "Medical Director" alluded to in the above has seen fit to send me a very kind (?) letter; and he tries again to explain how it is that Electropoise acts. He admits they get \$25.00 for a 50-cent article, and says the scientific explanation of Electropoise is, that it acts in the same way as putting cold applications to the spine; but instead of applying the ice to the spinal column the polarizer is placed on a block of ice, and the "cold" runs along the wire to the wrist or ankle, and then to the spinal column. This explanation is quite ingenious indeed. But, unfortunately, science has never yet discovered a sort of cold or heat either that could run along a wire; then he modifies it by suggesting that it is "thermo-electric vital force" that goes along the wire. No scientist of the present day recognizes any such force, I hardly need remark; and yet these fellows keep right on robbing sick people.

\$6.50; 25 boxes, \$15.00. Special prices quoted on large lots and carloads. One gallon or 12-lb. square cans, with screw caps, \$10.00 per 100; or put up, 10 in a box, at \$1.40 for one box; \$13.00 for 10 boxes; 25 boxes, \$30. We have a good assortment of glass packages for retailing honey in. See our catalog.

WHITE BEANS.

I believe these always bring cash as surely as wheat and corn; and the prices have never been away down, like wheat and corn—that is, to my knowledge. The beauty of them is, they do better when planted, say the last of June, than at any other time (less liable to be buggy); and we usually have ground that can be cleared off about this time. The hurry of planting is mostly over, so we can put them in in good shape. We have never found any thing better than the York State Marrow and the White Kidney. We can furnish either at 15 cts. per quart; peck, \$1.00; bushel, \$3.50. If wanted by mail, add 15 cts. per quart for postage.

CRIMSON CLOVER.

We copy the following from a circular just received from Baltimore:

"It can be sown from June to October 20th; the earlier, the more pasture it will make. It germinates quickly, grows very rapidly through the fall and winter, blossoms in this latitude about May 1st, and is ready for hay about the second week in May, and matures seed from the first growth about first week in June. It can be sown after other crops are removed from the ground, such as wheat (when clover has failed to catch), oats, millet, or on any vacant ground. It is a very rank grower, some stools containing as many as 120 to 140 blossoms from one seed.

"It will grow and make a heavy crop of hay or seed on land so poor that the common clover would not make a stand; and if cut when in full bloom it will make the most nutritious hay known; or if turned under it will prove a most productive phosphate, increasing largely any crop that follows. We believe great profit would result to the farmer by sowing buckwheat and crimson clover at the same time. He could thus get two more crops a year than are usually grown. The buckwheat nurtures the tender clover-plant, and shields it from the summer suns; and when it is taken off in the fall it leaves the clover healthy and strong to make its growth."

The principal point in the above is for bee-keepers. On the same ground you can get a crop of buckwheat and a crop of crimson clover, both honey-plants. From what experience I have had with both, I have not a particle of doubt but that it will succeed. I intend to make a sowing of several acres myself. From 8 to 15 lbs. of the crimson-clover seed are needed per acre, and we are prepared to furnish it at the following very low figures: Two-bushel sack, \$7.00; per bushel, \$3.60; half-bushel, \$1.90; peck, \$1.00; pound, 10 cts. If wanted by mail, add 10 cts. per lb. extra for postage and packing. We will send 3 lbs. by mail, postpaid, for 50 cts. Every bee-keeper should try a little patch of it in his garden, even if he does not do any thing more. The spring and winter just past have, perhaps, been as unfavorable for this plant as any one for years past; and yet the reports, even as far north as we are, are sufficiently favorable to warrant at least a further test. Of course, it is not to be expected that all who sow it will get as great results as are claimed for it in many of the circulars sent out.

The *Practical Farmer*, of Philadelphia, for June 15, is devoted almost entirely to reports of crimson clover, and instructions in regard to its management. We think it will pay any one who is interested in the matter, and has had little or no experience, to send for this as a sample number. Address *Practical Farmer*, Philadelphia, Pa.

Did you ever! My Hubbard squashes now, June 13, have leaves as large as my two hands, and yet not a bug, worm, or insect of any sort has even so much as looked in the direction of that squash-patch, evidently. I have been watching them every night and morning, ready for the fight; but it looks now as if I should not have any fight at all.



CARLOAD SHIPMENTS.

Since last report we have loaded and shipped a fourth car to Barteldes & Co., Denver, Colo. We are loading a second car for G. G. Wickson & Co., San Francisco, and have export orders sufficient to make a fourth car for New York city.

A MILLION FEET OF PINE LUMBER.

During the last month we have bought, or contracted for, a round million feet of dry pine lumber for use in making hives, frames, boxes, etc. We have also contracted to furnish 10 or 12 cars of lumber cut for boxes for shipping celery, most of it grown in this county. We have for some time been cutting up pine lumber at the rate of over two cars a week.

MASON FRUIT-JARS.

We have a pretty good stock of Mason fruit-jars, bought before price advanced, which we will sell, where they last, as follows:

1 pint, 1 doz. in box, 65c;	6 doz. in box, \$3.50
1 quart, " " 75c;	8 " " 5.40
1 gallon, " " 85c;	6 " " 4.75

These are best jars, made with natural glass.

NORTHWEST TRADE INCREASING.

From the settlement for the month of May with H. G. Acklin, St. Paul, Minn., our Northwestern representative, we note with much satisfaction a decided increase in the trade in our goods for that territory. The amount sold during the one month was more than for the entire year of 1893, and nearly as much as last year's entire trade. This indicates either that the prospects for bee-keepers in that section are much better, or that they appreciate Root's goods and the convenience of being able to get them near home at catalog prices on short notice, as well as the service of our agent there. Doubtless both considerations help to swell the trade.

HONEY-PACKAGES OF ALL KINDS.

We have already furnished this season a great many thousand shipping-cases of various sizes, and several hundred boxes of glass to use with them. We are ready to supply thousands more in large or small quantities, as needed. Our cases are light, strong, neat, and well made. They include nails, and, if ordered complete, will include glass and paper to go under and over the sections in each case.

For shipping extracted honey the 60-lb. square cans can not be surpassed. After July 1st. in all the territory covered by the Western Classification, i. e., west of Chicago and Mississippi River, extracted honey in barrels, kegs, or cans boxed, will go at 4th class rate of freight. We are prepared to furnish 60-lb. cans, with 1½-inch screw caps, from New Orleans, La., St. Louis, Mo., Coneauat, O., or from here. Price of a single box of 2 cans, 75c; 10 boxes,

LEATHER-COLORED QUEENS, 40 CTS. EACH,
or \$4.00 per dozen, June or after. Money-order
office, Royalton. A. T. MCKIBBEN.

Morrill, Morrison Co., Minn.

Golden Italian Queens.

Queens warranted purely mated, at 75c each; 3 for \$2.00; 6 for \$4.00; per doz., \$7.00. Untested queens after the 1st of July, 50c each. See former advertisements.

W. A. Compton, - Lynnville, Tenn.



That Tired Feeling

Caused by washing has been conquered by the Champion Washing-Machine. Can sit down to run it. Runs Lighter and washes Cleaner and Faster than any machine on the market. Will sell at wholesale rates where we have no agent. Write for prices.

CHAMPION MFG. CO.,
Middletown, Pa.

In responding to this advertisement mention GLEANINGS.

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians**, the result of 16 years' careful breeding.

Dr. H. B. Lung, Harrodsburg, Ky., says: "I have had the pleasure of seeing many fine strains of bees, yet I have never seen such industrious, energetic bees. I must express my admiration for your success as a bee propagator."

Warranted queens, 80c each; 3 for \$2.00. Select warranted queens, \$1.00 each. Safe arrival and satisfaction guaranteed.

Those who have never dealt with me, I refer to A. I. Root, who has purchased of me 808 queens. Circular free.

J. P. MOORE, Morgan, Pendleton Co., Ky.

Red-Clover Queens.



Friends, I am ready with those large Leather-colored and Golden Queens. Prompt delivery; 1 untested queen, 75c; tested, \$1.00; 1 doz., \$8.00. Sample queen, 50c.

Money-order office, Guernsey.

G. R. ROUTZAHN,
Menallen, Adams Co., Pa.

GOLDEN QUEENS

Bred for business. Untested, June, 65 cts each; 6 for \$3.50. Tested, \$1.00 each. Fine breeders, \$2.00 each extra. Select straight 5-banded breeding-queens, \$4.00 each. To all new customers one **GOLDEN QUEEN** for 50 cts. Satisfaction and safe arrival guaranteed.

E. A. SEELEY, Bloomer, Ark.

P. O. Money Order office, Lavaca, Tex. 7-20

BEGINNERS.

Beginners should have a copy of the Amateur Bee keeper, a 70-page book by Prof. J. W. Rouse. Price 25c; if sent by mail, 28c. The little book and the Progressive Bee-keeper (a live progressive 28-page monthly journal) one year, 65c. Address any first-class dealer, or

LEAHY MFG. CO., HIGGINSVILLE, MO.

"The Southland Queen."

for free catalog and sample journal.

THE JENNIE ATCKLEY CO.,
Beeville, Bee Co., Texas.

In responding to this advertisement mention GLEANINGS.

J. W. K. SHAW & CO.

Will fill your orders for Italian Queens promptly by return mail

Queens are carefully reared from fine imported and home-bred mothers; are large, healthy, and prolific.

Tested, this season's rearing, \$1.00 each. Untested, 70 cts. each; \$7.00 per doz. Safe arrival and satisfaction guaranteed. Make money orders payable at Loreauville.

J. W. K. Shaw & Co., Loreauville, La. Iberia Parish.



We can fill Your Orders

for Dovetailed Hives, Sections, Foundation, etc., by Return Mail. Have A. I. Root Co.'s goods at Their Prices. Will save you freight, and get goods to you in a few days. Catalog free.

JNO. NEBEL & SON, High Hill, Mo.

"The Market Garden."

A Monthly Journal

For Market-Gardeners and Truckers.

50 Cents a Year. Sample Copy FREE.

THE MARKET GARDEN CO.,
Minneapolis, Minn.

In responding to this advertisement mention GLEANINGS.

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,

127fdd Sole Manufacturers,
Sprout Brook, Montgomery Co., N. Y.

In responding to this advertisement mention GLEANINGS.

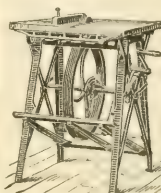
Control Your Swarms, Requeen, Etc.



Send 25c for samples of West's Patent Spiral wire Queen-Cell Protectors, and Pat. Spiral Queen Hatching and Introducing Cage, also best Bee-Escape, with circular explaining. Twelve Cell-protectors, 60c; 100, \$3. 12 cages, \$1; 100, \$5, by mail. Circular free. Address N. D. WEST, Middleburgh, Scho. Co., N. Y.

Sold also by all the leading supply-dealers.

In responding to this advertisement mention GLEANINGS.



Read what J. I. PARENT, of CHARLTON, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will."

Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to

THE A. I. ROOT CO.

Best ~ Goods

At lowest prices are what we are all after. The *quality* of Cary's goods has never been questioned. His X X white thin foundation and polished one-piece sections are the finest on the market. His bees and queens are from the best strains, and reared and shipped in the way that long years of experience have shown to be the best.

He has the largest stock of **BEE-KEEPERS' SUPPLIES** in New England; and as to prices you have only to send for a catalog and compare them with those of other dealers.

To those living in the East, there is the still further consideration of low freight rates. Address

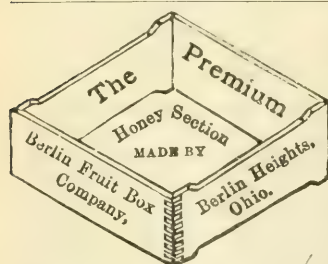
W. W. CARY,
COLRAIN, MASS.

In responding to this advertisement mention GLEANINGS

If Tons of Honey,

Pleased Customers, and Increasing Trade is a criterion, then my queens are satisfactory. **Warranted** purely mated queens from 5-banded strain, 75c; six for \$4.00; dozen, \$7.50. Safe arrival and satisfaction guaranteed. Send for free circular.

J. B. CASE, Port Orange, Vol. Co., Fla.



Order your supplies early before the rush gets you. Send for our price list of Bee supplies and Fruit packages. Address

BERLIN
FRUIT BOX
CO.,
Berlin Heights,
Ohio.

NOTICE.

We have proven to our satisfaction that queens bred in the North produce bees that are **hardier** and **winter better** than those bred in the South. We make queen-rearing a specialty. We never saw foul brood or bee-paralysis. Send for our free descriptive price list of our Gray Carniolans and Golden Italians. Prices to suit the times.

F. A. LOCKHART & CO., Lake George, N. Y.

In responding to this advertisement mention GLEANINGS.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. **PAGE & LYON MFG. CO.,** Stfd

New London, Wis. Please mention GLEANINGS. 21-8db

Promptness is What Counts.

Honey-jars, Shipping-cases, and every thing that bee-keepers use. **Root's Goods at Root's Prices, and the Best Shipping-point in the Country.** Dealers in Honey and Beeswax. Catalog free.

WALTER S. POWDER,
162 Massachusetts Ave., Indianapolis, Ind.



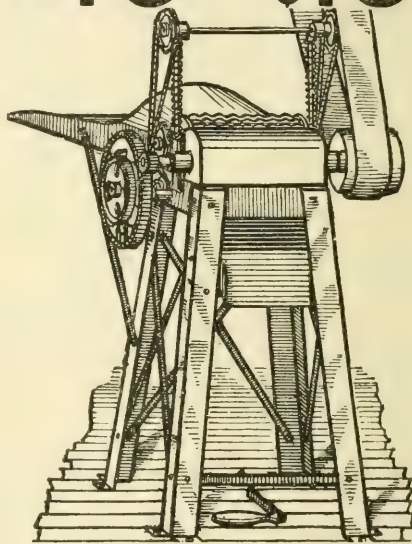
«MONEY-MAKERS»

Are a strain of business Italians that winter in the cold North, and are ready for business, with a bushel of bees, when the flowers bloom. They are gentle and industrious. Queens warranted purely in June. Each, \$1.00; six, \$5.00; doz., \$9.00. Safe arrival and satisfaction guaranteed. Never had any disease.

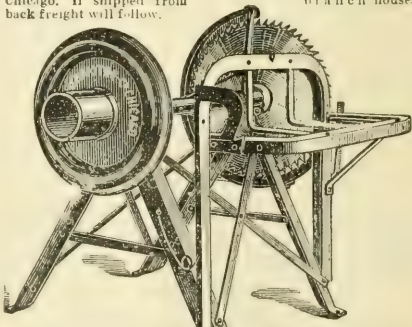
Address **E. F. QUIGLEY, UNIONVILLE, Mo.**

The Aermotor all Steel Feed Cutter Worth

\$40 FOR \$10



We will furnish this feed cut-er, one only to one person not later than July 1, 1895, for \$10.00 cash, and addresses of ten neighbors and acquaintances of the sender known personally by him to be responsible and influential men in their localities who need and are likely to buy something in our line this year. After July 1, money sent in on this offer will be returned to sender and no attention will be paid to inquiries or letters concerning this offer. It is literally now or never. The feed cutter is delivered f. o. b. Chicago. If shipped from branch houses back freight will follow.



This all steel frame and saw which we put out at \$25.00, is justly articles we ever made. **AERMOTOR CO. Chicago.**

Please mention this paper.

If Tons of Honey,

Pleased Customers, and Increasing Trade is a criterion, then my queens are satisfactory. **Warranted** purely mated queens from 5-banded strain, 75c; six for \$4.00; dozen, \$7.50. Safe arrival and satisfaction guaranteed. Send for free circular.

J. B. CASE, Port Orange, Vol. Co., Fla.

I Prevent Swarming



by de-queening, and sell or discard all of my queens every year. I now offer again all of my tested queens for 80 cts. each, 2 for \$1.50. Many of them are worth three times the money. A few mismated queens at 30 cts. each.

T. H. KLOER, Terre Haute, Ind.

In responding to this advertisement mention GLEANINGS.

Golden Queens From Texas.



My queens are bred for business, as well as for beauty and gentleness. Safe arrival and reasonable satisfaction guaranteed. Untested, 75c; tested, \$1.00.

Write for price list

5 16ei

J. D. GIVENS, Lisbon, Texas. Box 3.

In responding to this advertisement mention GLEANINGS.

Why Not



Try one of Leininger Bros. HONEY MAKERS, either Imported or Golden Queens? July prices are as follows: Untested, 70c; 1/2 doz., \$3.75; tested, \$1.00. We guarantee satisfaction.

LEININGER BROS., Fort Jennings, O.

Please mention this paper.

500 BUSHELS TRIUMPH Seed Potatoes For Sale.

New crop ready to ship July 1st to 10th; \$1.50 per bushel; 2 bushels or over, 10 per cent off. Address

J. T. PENICK,

Williston,

Tenn.

3-Banded

TESTED ITALIAN Queens, from my own imported queens, \$1.00 each.

Max Brauer, Beeville Bee Co., Tex.

Imported

Italian Queens \$3.50 each. Tested, \$1 to \$1.50. Untested, 75 cts. each.

W. C. FRAZIER, Atlantic, Iowa.

«MONEY-MAKERS»

Are a strain of business Italians that winter in the cold North, and are ready for business, with a bushel of bees, when the flowers bloom. They are gentle and industrious. Queens warranted purely in June. Each, \$1.00; six, \$5.00; doz., \$9.00. Safe arrival and satisfaction guaranteed. Never had any disease.

Address E. F. QUIGLEY, UNIONVILLE, MO.

BEE-KEEPERS' SUPPLIES FOR 1895.

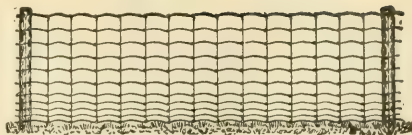
Such as Dovetailed Hives, Sections, Comb Foundation, Extractors, and every thing else used by a bee-keeper. All late improved goods. Immense stock. Goods sold at wholesale and retail. Write for our

DISCOUNTS FOR EARLY ORDERS.

Alsike clover and Japanese buckwheat furnished at lowest market price.

Address JOSEPH NYSEWANDER, Des Moines, Iowa.

In writing advertisers please mention this paper

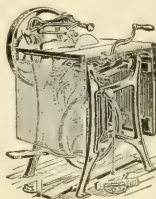


MISPLACED CONFIDENCE.

Without a shadow of fear farmer Trusty ran his traction engine on the bridge. The builder proved it safe by figures thus: four stringers across the ditch carry 1500 lbs. each, fourteen plank 500 lbs. each, equal to 13,000 lbs. While the coroner's son Trusty's remains, the builder skipped out. Maybe "figures won't lie," but they are sometimes juggled by ignorant or unprincipled men. Remember when figuring on fences the cross wires or pickets, like the bridge planks add nothing to the strength and the "stringers" of the Pige are doubly strong.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

In responding to this advertisement mention GLEANINGS.



ONE MAN WITH THE UNION COMBINATION SAW

Can do the work of four men using hand tools, in Ripping, Cutting off, Mitering, Rabbeting, Grooving, Gaining, Dadoing, Edging-up, Jointing Stuff, etc. Full Line of Foot and Hand Power Machinery. Sold on Trial. Catalog Free. 1-24ei

SENECA FALLS MFG. CO., 44 Water St., Seneca Falls, N.Y.

In responding to this advertisement mention GLEANINGS.

Every Farmer

Ought to read the Rural New-Yorker.

(Published weekly.)

It is the business farmer's paper, and a most reliable authority on agricultural and horticultural subjects. Frauds and humbugs fear it. ONLY \$1 A YEAR. Send for sample copy to

THE RURAL NEW-YORKER, New York.

We have made arrangements so that we can send it and GLEANINGS for \$1.75 a year.



That Tired Feeling

Caused by washing has been conquered by the Champion Washing-Machine. Can sit down to run it. Runs Lighter and washes Cleaner and Faster than any machine on the market. Will sell at wholesale rates where we have no agent.

Write for prices.

CHAMPION MFG. CO.,

Middletown, Pa.

In responding to this advertisement mention GLEANINGS.

MUTH'S HONEY-EXTRACTOR, SQUARE GLASS HONEY-JARS.

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "Practical Hints" will be mailed for 10c in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.

HONEY COLUMN.

CITY MARKETS.

BOSTON.—*Honey.*—Our market for comb and extracted is fully supplied, with a very light demand. Prices, comb, 14; extracted, 5@6.

E. E. BLAKE & CO.,
Boston, Mass.

June 19.

BUFFALO.—*Honey.*—There is very little doing in honey, and market is quiet. Fancy, 12@13; choice, 7@8. Extracted very quiet; but light receipts in market.

BATTERSON & CO.,
Buffalo, N. Y.

June 18.

MILWAUKEE.—*Honey.*—The demand for honey is very light. The season for fruit cuts off greatly the consumption of sweets. The supply is ample for all demands at this time. We continue to quote best quality 1-lb. sections, 14@15; second quality, 10@12; dark, 8@10; extracted, in barrels and kegs, white, 6@7; in pails and cans, 7@8; dark, in barrels, 4@5. Beeswax, 26@28.

A. V. BISHOP & CO.,
Milwaukee, Wis.

June 18.

CINCINNATI.—*Honey.*—There is no change in the market. Extracted honey is in fair demand at 4@7. Comb honey brings 12@14 for best white. There is a good demand for beeswax at 25@31 for good to choice yellow, with a scant supply.

CHAS. F. MUTH & SON,
Cincinnati, O.

June 18.

CLEVELAND.—*Honey.*—There is scarcely any demand for honey at present. No. 1 white in 1-lb. sections, is selling at 13; No. 2, 11. Extracted, No. 1 white, 6@8. Beeswax, 28.

WILLIAMS BROS.,
80 & 82 Broadway, Cleveland, O.

June 18.

KANSAS CITY.—*Honey.*—Supply light, demand light. We quote No. 1 white 1-lb. comb, 13@14; No. 2, 12@13; No. 1 amber, 11@12; No. 2, 8@10; extracted, white, 7; amber, 6; dark, 4@5. Beeswax, 22.

C. C. CLEMONS & CO.,
Kansas City, Mo.

June 19.

KANSAS CITY.—*Honey.*—Old crop of honey cleaned up; no new on the market. One-lb. white comb, old, 13; extracted, light, 6@7; dark, 4@5. Beeswax, 25.

HAMBLIN & BEARSS,
Kansas City, Mo.

June 19.

DETROIT.—*Honey.*—Best white comb held at 14; no sales of late. Strawberries always knock out honey. No new honey in sight yet, and but little old left. Extracted, 6@7. Beeswax, 24@25.

M. H. HUNT,
Bell Branch, Mich.

June 9.

CHICAGO.—*Honey.*—We are cleared up on comb honey, and there is some demand. The new crop will find a bare market. White comb brings 14@15; dark, 8@10. Sales of extracted are chiefly at 6@6½; Southern, 5@5½. Beeswax wanted at 28@30—very little selling below 30. We would advise shipments to meet present needs.

R. A. BURNETT & CO.,
163 So. Water St., Chicago, Ill.

June 18.

PHILADELPHIA.—*Honey.*—The honey market has begun to pick up some, with some call for new-crop comb. Extracted honey in fair demand. The market is all cleaned up of old comb honey. We quote new-crop extracted at 5½@6½, in bulk. Comb, 11@14, according to quality. Beeswax, 25@27.

WM. A. SELSER,
No. 10 Vine St., Philadelphia, Pa.

June 20.

CHICAGO.—*Honey.*—We report no inquiry for honey at present writing, but look for a good trade in August, as revival of business means prosperity for honey.

S. T. FISH & CO.,
189 South Water St., Chicago, Ill.

June 19.

SAN FRANCISCO.—*Honey.*—I quote extracted honey at 4½@5½ for light amber or white, respectively; comb, 1-lb. frame, 8@10. Beeswax, 26@27. The honey crop may be a good average one, although the bees are not working as well as was expected some time ago.

HENRY SCHACHT,
San Francisco, Cal.

June 13.

No. 1 extracted honey in 50-lb. pails at 7c per lb.—\$3.50.

J. B. MURRAY, Ada, O.

FOR SALE.—600 lbs. of comb honey, in 1-lb. sections, in 24-lb. shipping-cases, at 12c per lb.

EDW. SMITH, Carpenter, Madison Co., Ill.

BEE-KEEPERS.—We buy quantities best quality of comb and extracted honey. Let sample accompany price. We guarantee prompt pay, and give The A. I. Root Co. as reference.

J. A. BUCHANAN & SONS, Holliday's Cove, W. Va.

ALFALFA IN ARIZONA.—We will sell you alfalfa honey F. O. B. Phoenix at 4½c in 1000-lb. lots or more. Less than 1000 lbs. at 5c in five-gallon cans. Car lots a specialty.

J. P. IVY,
Secretary Bee-keepers' Association,
Phoenix, Maricopa Co., Arizona.

ALFALFA HONEY, very white, thick, and rich. Two 60-lb. cans at 7c. Same, partly from cloome (tinted), 6c. Samples, 8c.

OLIVER FOSTER, Las Animas, Col.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 187dcb and Prompt.

CHAS. ISRAEL & BROS.,

486, 488 & 490 Canal St., Corner Watts St.

WHOLESALE
DEALERS &
COMMISSION
MERCHANTS.
Established
1875.

HONEY

—AND—

BEESWAX.

LIBERAL
ADVANCES
MADE
ON
CONSIGN-
MENTS.

WHAT'S THE USE OF KEEPING BEES

If you do not sell the honey? That's what we are here for. Get our high prices before selling.

C. R. HORRIE & CO., commission merchants,
224 So. Water St., Chicago, Ill.

Reference, First National Bank, Chicago.

In responding to this advertisement mention GLEANINGS.

J. W. K. SHAW & CO.

Will fill your orders for
Italian Queens promptly by
return mail

Queens are carefully reared from fine
imported and home-bred mothers; are
large, healthy, and prolific.

Tested, this season's rearing, \$1.00
each. Untested, 70 cts. each; \$7.00
per doz. Safe arrival and satisfac-
tion guaranteed. Make money or-
ders payable at Loreauville.

J. W. K. Shaw & Co., Loreauville, La. Iberia Parish.

In responding to this advertisement mention GLEANINGS.

Tested ♀ By mail, in July and Au-
Italian ♀ gust, 50 cents each.
Queens ♀ J. C. Wheeler, Plano, Ill.

Italian Queens By Return Mail.



From best imported mothers, mated to
drones of finest imported stock, from
a different source, hence a direct cross.
All queens warranted purely mated
and to give satisfaction, at 75c each;
6 for \$4.00; select warranted, \$1.00. No
disease. Safe delivery.

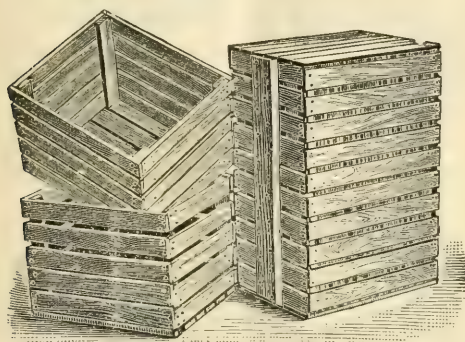
L. H. ROBEY, Worthington, W. Va.

In responding to this advertisement mention GLEANINGS.

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BUSHEL BOXES.



The above cut shows our popular *all-slatted bushel box*. We have two other styles; one has slatted bottom and sides with solid ends in three pieces called the *slatted bushel box*. The other has solid ends and close bottom and sides, and is bound with galvanized iron and called the *galvanized bound box*. These boxes were devised by T. B. Terry for handling potatoes, for which purpose nothing could be handier. The potatoes are picked up into the boxes in the field and left in them till sold. Other crops, such as cucumbers, tomatoes, and apples are being handled in these same boxes. They are of such a size that two go crosswise in an ordinary wagon-box. Outside measure is 14x16x12 1/2 deep, and they hold a bushel of potatoes level full so they can be piled one upon another. The above cut shows two *all-slatted* boxes nailed up, and a bundle of 15 alongside; 13 of the 15 are in the flat, packed inside the other two, and nails of the proper kinds are included. The *slatted* and *galvanized bound* boxes are put up in the same way, except there are only 12 in a package instead of 15. Each package weighs about 85 to 90 lbs.

PRICE LIST.

All-slatted bushel box, per crate of 15.....	\$1 50
Slatted bushel box, per crate of 12.....	1 50
Galvanized bound bushel box, per crate of 12.....	2 10

In lots of ten crates, 5 per cent discount will be deducted. Price each, nailed, 15, 13, and 22 cents, respectively. A 20-page pamphlet called *Handling Farm Produce*, telling all about these boxes, mailed free on application.

THE A. I. ROOT CO., Medina, Ohio.

FOR SALE.
ITALIAN BEES AND QUEENS.
 QUEENS, 75 CTS.
 MRS. A. A. SIMPSON, SWARTS, PA.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your advt in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange old breeding-queens which I can recommend, for old breeding-queens which you can recommend. Object, to secure new and desirable strains, and avoid the evils of in-breeding. J. F. MCINTYRE, Fillmore, Cal.

WANTED.—To exchange thrashing-machine, with bagger, run one season, for honey-machinery or offers. J. C. REDPATH, Kalamazoo, Mich.

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation. ANTHONY OPP, Helena, Ark.

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample. J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 25-in. planer, power scroll saw, all iron; tenoner, and mortiser, for portable sawmill, or other wood-working machinery. Will give a bargain for cash. GEO. RALL, Frenchville, Trempe Co., Wis.

WANTED.—To exchange foundation-mills and honey-extractors for honey or wax. I. J. STRINGHAM, 105 Park Place, New York.

WANTED.—A foundation-mill, in exchange for other goods. L. L. ESENHOWER, Reading, Pa.

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED
TO BEES
AND HONEY
AND HOME
INTERESTS.

ILLUSTRATED
SEMI-MONTHLY
Published by THE A. I. ROOT CO.
\$1.00 PER YEAR MEDINA, OHIO.

Vol. XXIII.

JULY 1, 1895.

No. 13.

STRAY STRAWS FROM DR. C. C. MILLER.

ABOUT 52,000 bee-keepers, Mr. Cowan estimates, are in England and Wales.

ALL IN ALL I like the new Corneil smoker better than any other smoker I ever tried.

MORE GOOD PEOPLE are in the world than we sometimes suppose. Every little while I find some new ones.

A PRIME SWARM, says Doolittle, p. 484, "is often erroneously called a first swarm." Why "erroneously"?

HAY FEVER is what Somnambulist, in *Progressive*, thinks is the matter with me. Caught from sweet-clover hay.

ALFALFA is a thing that I supposed belonged outside of Illinois; but farmers in Northern Illinois are beginning to experiment with it.

PRETTY LATE to experiment with sweet clover this year; but you might still try cutting the big stalks to see whether stock will eat them when dried.

I CAN REMEMBER when clover yielded honey, but it wasn't last year nor this year. [Why don't you move over into the basswoods of Wisconsin, not far from you?—Ed.]

THE HIVE DISCUSSION should stop—if it continues to bring out good points—in about five years from now. [Do you mean it should or shouldn't stop? Don't catch on.—Ed.]

S. E. MILLER, in *Progressive*, thinks the form of hive, shallow or deep, doesn't matter much, because in a state of nature bees don't care whether a hollow log is perpendicular or horizontal.

J. B. HALL's PICTURE graces the pages of the *Canadian Bee Journal*. Friend Hall is very economical of ink, but he knows a lot about bees. [That's so. Too bad he doesn't write more.—Ed.]

THE UNION of the Bee-keepers' Union and the North American, shall it be or not? Better

discuss it thoroughly in print than to take time to discuss it at Toronto. [Yes, yes; the sooner the better.—Ed.]

GOLDEN QUEENS are offered by 11 advertisers in last GLEANINGS, and 11 others offer plain Italians. In the market for queens, as well as for comb honey, looks go a great way.

B. TAYLOR, after inventing and using for many years the sectional brood-chamber, takes away one's breath by saying in *Review* that he prefers the single brood-chamber. [Will he tell us in full why?—Ed.]

AFTER-SWARMS often have a number of queens accompanying. If instinct impels so many to leave, what holds any in the hive? or will all leave if all are out of cells? [Yes and no. No, I don't know.—Ed.]

THE *American Bee Journal*, in the person of Geo. W. York and wife, honored the Miller family with a visit June 12. Brother York brought along his usual stock of good nature, and we had just the best kind of a time.

HASTY tells in *Review* how to prevent swarming, and ends up by saying: "There, my bees bother me so with their swarming that I can't find time to tell you any more about how perfectly easy it is to prevent all swarming."

F. C. MORROW, taking pity on my homeless condition, has sent me some Arkansas honey. In appearance the honey compares with the best, and only needs improvement in flavor to bring price of gilt-edged section honey.

IN TAKING OFF honey-boards or any thing else with dauby burr-combs under, just raise up enough to break the burr-combs and then let down again. In an hour or so you can remove and find the burr-combs licked dry.

YOU MEDINITERS—no, I didn't say dynamiters—have never told us yet whether fastening wires by electricity was the right thing for us common every-day bee-keepers. [Yes, sir, if you can make it work. We have no trouble.—Ed.]

TIN PANS, HORNS, etc., are generally condemned as no good in making swarms settle. S. T. Pettit, one of the Canadian veterans, says

in *C. B. J.* that for 15 years he has not failed to make an absconding swarm settle by vigorously ringing two good cow-bells, keeping always in front of the leaders of the swarm.

GEODES are not a peculiarity of Tampa Bay, friend Root. I found many of them near Johnstown, Pa., in a deep cut made for the Pennsylvania Railroad. The water doesn't get inside the stone; the stone grows around the water.

DOOLITTLE has been misunderstood to claim that all five-banders have the same origin. He explains in *Progressive* that others have produced them from Syrian, Cyprian, and other bees, but he thinks all the five-banders of *Italian* origin have come from Mr. Hearn or himself.

CANADIANS have in general held out against wiring frames. The last *Canadian Bee Journal* touches the subject in a gingerly manner—doesn't approve, doesn't condemn—just says that the method of fastening wires by electricity works beautifully. On this side the line the wiring works beautifully too, whether fastened by lightning or not.

SAYS DOOLITTLE, in *Progressive*, "I have been in the bee-business as a specialist for the past twenty years, yet I feel that what I don't know of the business stretches out wide and vast, away out into the unknown; and I sit as a child at the feet of some vast problem, much of which is beyond my comprehension." Shake, brother Doolittle, shake.

THIS TROUBLES ME: Some report—particularly in Europe—that very strong colonies with unlimited brood room do nothing but rear bees to be fed, while other colonies with limited room for breeding lay up a surplus; and on the other hand we have reports where it's the unlimited room for the queen that goes with the surplus, and little brood room means little surplus.

FOR SHADE over hives standing in the sun, try this: Cut some grass—long slough grass if you have it; pile it on the hive six inches or more deep, and anchor it with two or three sticks of stovewood. Lift cover and all, and it will last through the season. But I want shade over myself as well as the bees. [So do I; but somehow it is not always convenient to have it so.—ED.]

A SMALL NUMBER have for years paid an annual tax for the benefit of bee-keepers in general. Is it fair to continue the Bee-keepers' Union in that way? Is there no way by which a large number can become interested in the Union and the North American? Large membership is the thing to strive for, rather than large attendance at meetings. In union there is strength. [How would it do to have smaller membership fees and a larger membership? I think it would be well to consider this.—ED.]



LARGE VS. SMALL HIVES.

WHY IT IS A QUESTION OF LOCALITY; A GOOD ARTICLE.

By J. E. Hand.

Editor Gleanings:—I have read with much interest the discussion on the subject of large v. small brood-chamber hives. This is a subject of vital importance to the bee-keeper, and one on which depends his success or failure in the production of surplus honey, perhaps, as much as on any other one thing except, possibly, location. I am persuaded it is all a matter of location, and length and time of honey-flow, that must ever decide this question of whether a large or small brood-chamber hive will give the best results in surplus honey. There can be no iron-clad rules laid down in regard to this matter, but it should be carefully considered and decided upon by each bee-keeper for himself, and according to his location, and time and duration of honey-flow, etc. Because a bee-keeper in Colorado has splendid success in the production of comb honey with a twelve or even fourteen frame hive, it does not signify that I should not have as good or even better success in my location with an eight-frame hive than with his large hive.

I will try to explain why it is altogether a matter of location. In the first place, every bee-keeper in the North (especially in Central Iowa, where I have kept bees for the past 12 years) knows that the hardest thing for us to do is to get our hives full of bees and brood in time for the white-clover harvest, which usually begins about June 1st, after which basswood opens about July 1st, and lasts from 5 to 20 days, according to the season, conditions of the weather, etc., 21 days being the longest flow I have ever known from basswood in Iowa; and as we do not have any surplus from fall flowers, our harvest closes with basswood, about July 10 to 15. Now, then, it is conceded by our most scientific apiarists that a bee does not become a field-worker until about 16 days old; and as it takes 21 days from the egg to the bee, then 37 days must elapse from the time the egg is deposited by the queen until it becomes a field-worker; hence all eggs laid after 37 days prior to the honey-flow which yields your surplus become worse than useless, because they become consumers instead of producers; and it has cost much honey and time of the workers to raise them, which might otherwise have been employed in gathering honey from the fields.

Now, then, 37 days prior to July 1st brings us back to May 23d; hence it will be seen that all eggs, in order to produce workers for the bass-

wood crop, which ends the surplus for the year, must be deposited by the 23d of May. Now, then, brother bee-keepers of Central Iowa, how many swarms would you have in 100 that would have eight frames, or even six, full of brood by May 23? After an experience of 12 years in Iowa I will venture to say that, one year with another, you would not have 25 hives out of 100 that would have even six frames full of brood by the 1st of June. Some seasons it is so cold during the fore part of May that it is impossible for the bees to care for so much brood at that season.

Now, in view of these facts how absurd it would be to advocate a ten, twelve, or fifteen frame hive for such a location! Why, any practical honey-producer can see at once that his surplus would go to fill up those empty combs in that brood-chamber, instead of going into the sections. As for me, I want a brood-chamber for brood, and it must be of a size that an average queen and colony of bees can fill with bees and brood in time to gather the white honey whenever it comes.

After years of careful study and experimenting along this line, with the above-named conditions to face, with eight and ten frame hives side by side, I have decided in favor of the eight-frame every time, for comb honey. This is for Central Iowa. On the other hand, in a location where the honey-flow does not come so early in the season, and continues all summer, an entirely different system would have to be practiced. For instance, in the San Joaquin Valley, in California, the surplus is gathered principally from alfalfa and fall weeds, and other flowers; in fact, nearly every thing that blooms yields honey to some extent; but their swarming is all over long before the harvest begins; and the more swarms they can get, the more honey they expect; and the parent colony has plenty of time to build up and get ready for the harvest from alfalfa, which continues to yield during the entire summer, and sometimes even to the first of November.

Now, in such a location as this it would be foolishness to advocate an eight-frame hive, for it is very important that the queen be coaxed to lay to her fullest capacity to produce workers for such a continuous honey-flow.

No, brother bee-keepers, this subject of large or small brood-chamber hives can never be governed by any fixed rules, but must ever be a matter of location, and time and duration of the honey-flow from which we obtain our surplus.

I will close by saying that I have no pet theory to bolster up, and will use the hive that gives me the best results in the production of honey, every time, if I can find it, and I think I have found it at last; and if this escapes the waste-basket I will at some future time tell the readers of this journal the hive I like best of all, and why.

J. E. HAND.

Wakeman, O., May 15, 1895.

[This article, it seems to me, states the situation exactly; and, no matter what has been said to the contrary, I think locality accounts very largely for the difference in opinion and experience. Indeed, it could hardly be otherwise. Competent and intelligent witnesses have testified in favor of the large or small hive, and from their standpoint and locality we can hardly question the soundness of their argument. Why, then, should these good witnesses differ? That little word "locality" explains it all. As I said in an editorial in our last issue, light is surely breaking. While some localities most assuredly require large hives, other localities want nothing larger than the eight-frame size, Langstroth; and our experience and orders show that a majority of bee-keepers are and have been situated like our friend J. E. Hand, as above.—Ed.]

BOX OR MODERN MOVABLE-FRAME HIVES.

WILL BEES STORE MORE HONEY IN THE AGGREGATE IN THE ONE THAN IN THE OTHER?

By C. Davenport.

In GLEANINGS for March 15, in one of the editorials we read: "The old statement that bees will store as much honey in an old nail-keg as in the most improved hive still stands practically uncontroverted." Now, I do not know that I can say any thing to controvert that statement; nevertheless, I do not believe that bees will store as much in a nail-keg, or, what is practically the same thing, a box hive, as they will in a modern hive, for I have kept some bees in box hives for a long time, and still have about 20 colonies in such. The largest yield I ever got from a colony in a box hive was about 80 lbs. This was secured by having holes in each side of the hive, over which boxes that would hold 20 lbs. each were fastened. There was also one on top, which they filled twice. I got them to work in these boxes by fastening pieces of comb in each one. This colony did not swarm that same season, which, by the way, was a good one; in fact, it was the best season for honey that I ever saw. A colony in a 10-frame hive stored 237 lbs. in 2-lb. sections—not by guess, but by actual weight. This is the largest yield I ever got from a single colony. I also made four new colonies from this one, and had them in first-class shape for winter. It was done in this way: This colony, which was a very strong one, got the swarming-fever just at the beginning of the white-clover flow. I did not wait for them to swarm, but removed all their brood, and gave them frames with only narrow starters of foundation in them. Now, I believe that, according to theory, a colony thus treated should not store any or work in sections until the brood-nest is full. But in actual practice a colony thus treated will, if the super is put on with one or two bait-sections, and the rest filled with full sheets of foundation, go to work in them at once—that is, in a good flow. I took those frames of brood with but very few bees on them, and divided them up into four hives;

and as soon as a few bees in each hive had hatched I gave them a laying queen, and then built them up by feeding and giving them frames with full sheets of foundation as fast as they could use them. At this time of the year it is warm, and no danger of robbing, and they will build up faster than one would suppose.

That same season from 40 colonies, spring count, I secured nearly 150 lbs. of surplus from each, and made a very large increase by the method I have just described. But perhaps I should say that all these colonies were very strong ones. They were the best ones that could be picked out of over 150. They also had a very good range, and at that time they were practically all the ones there were to work on it. But now if these colonies had been in box hives, would they have stored that much honey? I do not believe that they would—at least, it is certain that I could not have got them to do so.

Another old statement is, that one who keeps bees in box hives, and uses a starch or cracker box on top for a super, will get as much surplus. True, but not in as marketable shape as the one who uses improved hives. In this locality the former will not get as *much*, nor half as much; for, from some cause or other, bees in a box hive will not go up through a hole or holes in the top, and store as much honey in a box inverted over the same as they will in a super over a frame hive; for, with a very few exceptions, a small boxful on top makes them think it is time to swarm, and there is no way to prevent them that I know of—at least, no way either to prevent or to allow them to swarm, and still get a surplus by using box hives; for a swarm that is hived in a box hive will not fill a box on top at once, as they will a super where a frame hive is used. And now suppose that, from the same yard, the same day, we have two swarms issue that are the same size, and just alike in every way; say that we hive one in a small frame hive, the other in a box hive that is large enough to hold all they can possibly store, without having to go up into a box on top to work; which one will store more? I believe I can get the one in the frame hive to store at least a third more by using sections, with full sheets of foundation in them; for while, in some seasons, I think as some others do, that there is not much advantage in full sheets, as a rule I believe we can get a good deal more honey by using them. But I do not think foundation is the only thing that will cause the colony in the frame hive to store the most. I think that shallow supers and the tiering-up system enables or causes bees to store more than they will when they are given as much room all at once as would be necessary in the case just mentioned. But by keeping bees in box hives, and hiving the swarms from them in small frame hives, and using supers, etc., in the usual way, we can get

good returns from them provided they winter well, and then swarm at the right time. But, no matter what kind of hive we use, or what kind of bees we have, we shall sometimes lose one or more queens during the winter, and quite often a young queen will be lost when she goes out to mate.

The reader will now readily understand that a colony, in either case just mentioned, has at that time no brood from which they can rear a queen; and when a colony in a box hive loses its queen at such a time, it is a good deal more work, and much more difficult to remedy the matter, than it is when the same thing occurs in a frame hive.

Another old statement is to the effect that it is easier, and less work, to keep bees in box hives. I can not agree with this either. In fact, I think it is right the other way, even if we are keeping bees merely for pleasure, unless those who winter them outdoors can do so with less loss by using box hives. But even if this is the case, the difficulty I have just mentioned will, I believe, balance this. If it will not, there are many other serious disadvantages in trying to use box hives that surely will. Now, on the other hand, if we are keeping bees for pleasure, and also all the profit we can get out of them, I believe we can not only produce honey with less work, but that we can get *more* of it by using improved hives.

Southern Minnesota, June 5.

[Friend D., I do not think there is any conflict in our views, if I understand you correctly. Referring to the editorial in question, speaking of hives, I said, "Construction may enable him also to secure a little more marketable honey, and perhaps a little more in the aggregate. The old statement, that bees will store as much honey in an old nail-keg as in the most improved hive, still stands practically uncontroverted." You will see from the above that I do not say that modern hives would not give any more honey, nor that they would not produce more marketable honey; but I still think that a box hive, under normal conditions, having the same cubic capacity as a modern movable-frame hive containing section honey-boxes, will produce practically as much honey in the aggregate (not marketable) as any other.—Ed.]

BEE-KEEPING IN DIFFERENT COUNTRIES.

DOES IT BECOME LESS PROFITABLE AS CIVILIZATION ADVANCES?

At the recent convention of Ontario beekeepers, W. Z. Hutchinson rather argues that, as a country becomes settled and civilization advances, bee-keeping is likely to become less profitable. Under such circumstances we should probably feel justified in expecting that, in the long-settled countries, the number of hives kept would be very small. Such is, however, not the case. Germany has 1,900,000 hives; Spain, 1,690,000; Austria, 1,550,000; France, 950,000; Holland, 240,000; Russia, 110,000; Denmark, 90,000; Belgium, 200,000; Greece, 30,000. The

value of the annual production of honey and wax is estimated at \$14,750,000. There is, undoubtedly, reasonable ground to believe that some districts have greater advantages for the production of honey when first entered by the settler; but as a rule the flowers in a state of nature are in time replaced by another growth, artificial and natural. The increased skill of the bee-keeper, of course, overcomes some disadvantages. In Switzerland there are 2367 bee-keepers, possessing between them 10,509 stocks; this makes an average of less than five colonies to each. Very few possess as many as thirty; and in looking over a long list we find one having as many as 80 colonies. The bees will then be pretty well distributed; but imagine the number of colonies kept to the size of country. We find the number of square miles in each country as follows:

Country.	Square Miles.	Colonies per Sq. Mile.
Germany	208,027	9.00
Spain	200,000	8.45
Austria	115,903	13.37
France	204,000	4.65
Holland	12,648	18.09
Russia	2,950,000	1.00
Denmark	14,124	6.37
Belgium	11,373	17.49
Greece	25,000	1.20
Ontario	219,640	.74
Canada		.06

These countries practically consume their own production of honey. Owing to their age they are a more scientific people, and, owing to the small amount of earning, they have to be an economic people. Science and economy will teach people to consume honey. Very few of our Canadian people are aware of the value of honey as a food. Bee-keepers *must* exert themselves in this direction until it becomes the habit of the nation, when the custom will perpetuate itself. If we look at the value of bee-keeping in a country, it is inestimable. Europe produces nearly eighteen million dollars' worth from what would otherwise go to waste; and not only that, but in the fertilization of flowers it in all probability adds a similar sum to the wealth-producing powers of the country. Bee-keepers are surely fully justified in feeling that their industry represents nothing insignificant, and that it will stand on just as high a plane as they may place it. If they call it a trifle, a bagatelle, and the like, they must not blame the public for placing it at no higher standard.—*Canadian Bee Journal for May.*

A COLORADO LETTER.

FROM OUR OLD FRIEND M. A. GILL.

Editor Gleanings:—I have been much interested in your notes from Florida upon its products, its climate, and its people, and take this opportunity to say that I too have been rambling since you last heard from me. A person

coming from a humid region to an arid one is lost for something "green," and he generally turns his eye inward and thinks he sees the *greenest* thing yet—the people who leave a country whose crowning beauty is in its grassy slopes and leafy bowers, for the desert-like plains of the irrigable lands of the great West. But if he will stay until the water is turned on, and see the worthless-looking soil give up its burden of three or four crops of alfalfa in one season—see peach, pear, prune, or apricot give growth from six to ten feet in one season, he is generally spellbound and thinks, perhaps, that these facts should be added to the seven wonders. Truly this is a wonderful land of ours, and has a great variety of products and climatic conditions.

This is a good country for bees, both in this valley and up the Gunnison River, wherever alfalfa is raised in large tracts. Cleome also is found in large quantities, which yields large amounts of honey some seasons.

The one great drawback to bee-keeping in this valley will be foul brood, as it has got a start about ten miles from this city, and the slipshod bee-keeper, who abounds and seems to thrive in this country, will no doubt spread the disease faster than the vigilant eye of the inspector can detect and destroy it.

Bees at this time are breeding fast, gathering pollen from natural sources, and some honey from apricot-bloom. Peaches will be in bloom in two or three days, which will be followed by apple and pear. There are about 4000 acres of bearing orchard around this city, and it is estimated that as much more will be set this spring.

Western Colorado is earning a reputation for its large crops of fine-flavored fruit. I am having a mild attack of fruit-fever, and have taken as a remedy 5 acres of new land at \$100 per acre, and am setting it out to apples, pears, peaches, prunes, plums, nectarines, apricots, cherries, almonds, with strawberries and raspberries between the rows. I have purchased 25 colonies of bees, and will try to grow into my old-time number of 150 in Wisconsin.

While reading your experience with the two Indians in Florida I was thinking of mine here. Last Sunday my son Ernest and I mounted our wheels and went out to visit the Teller Institute. It is situated two miles east of the city. It was built by the government, and named in honor of Senator Teller, of Colorado, who took a great interest in promoting the enterprise. As we neared the school we found the large gate open; and as we wheeled into the campus we were soon surrounded by 126 Indian boys and girls who had just come out from their Sunday-school. Dinner was soon announced, when one of their number, acting as drillmaster, formed them in line and marched them in strict military order to the dining-room. Through the kind invitation of the superintendent, we followed. On reaching the dining-room each

took his or her place behind a chair at the dining-table; and at the tap of the bell each one stood with bowed head and reverently returned thanks for all the blessings that were around and about them. At another tap of the bell each took a seat and enjoyed a splendid dinner, gotten up by their own members who have charge of the culinary department. I said to myself I was thankful I lived in a land where the light of learning is being carried to those uncultured minds. I could see that each one, as he returned to his respective tribe, would be a nucleus for much future good. But the system to me seems yet incomplete; for, so long as their tribal relations exist, many will drift back to their former modes and manners, and can not accomplish the good they could if they were made full citizens, and given land in severalty.

In changing from Indians back to bees I will say I should think it would pay you or some one else to establish a branch house for the distribution of supplies here or somewhere on the western slope of the Rockies, as the freight is nearly as high from here to Denver as from here to Medina.

Bees have wintered well here, and are rich in old stores—a condition which is very desirable where bees fly nearly every day in the spring, but gather nothing.

I will say, in closing, that we are all in good health, and are nearly in love with this country, as we have good schools, good churches, and good society; and we hope to live so as to add to instead of taking from the good things to be found in this land.

Grand Junction, Col., April 8, 1895.

T SUPER VS. SECTION-HOLDER.

THE MATTER DISCUSSED FURTHER

By Dr. C. C. Miller.

I had hoped before this time to notice the editorial remarks on page 354. Perhaps you have fondly hoped, Mr. Editor, that I wouldn't. You say, "We boomed the T-super arrangement in our 1895 catalog harder than ever, putting in a nice wood cut. But our packers hardly know what it is." Yes, you made a nice picture of it, and all that; but then you said the section-holder is better. Now suppose you leave out the booming picture; don't say a word in praise of the T super; give high praise to the section-holder, and then make the remark that the T super is better than the section-holder. Then see if your packers won't know what the T super is. The point I'd like to have you see is, that all your booming isn't booming at all. You might just exactly as well not put the T super in your list at all, so far as beginners are concerned, as to put it there with picture and high praise, and then say, "We

consider the section-holder superior to any other."

I asked you to name a single feature of the section-holder better than the T super. To this you make no attempt at reply, except to say, "T supers were not very well adapted to the Dovetail hive without making supers of different lengths from the regular hive-body." That is, the reason that the section-holder is superior is because it looks better to have a super the same length as a hive-body. And for that matter of looks you advise beginners to use an inferior article! I believe in looks, but I don't want inferior bees just because they are handsome, and I don't want a super for looks. In the picture of the T super you have four pieces nailed on to make out the length. One of those pieces would work just as well as the four.

You say the single-tier wide frame "seemed to have all the advantages of the T super." Without mentioning anything else, let me ask whether the wide frame has the advantage that a section of any width can be used in it.

You disavow the idea of calling me an old fog; but then you make me tear my hair with rage by saying that I prefer the T super because I have become accustomed to it, and my habits of working fit it better than any thing else. Now look here; don't you know I was accustomed to the wide frames, and that my habits of working fitted them? I had raised tons of honey with wide frames, and had an invention of my own for emptying them that you thought worth describing and illustrating. I threw aside the hundreds of wide frames I had, both single and double tier, and adopted the T super. Why shouldn't I be just as willing to throw aside the T super for something better?

And while we're on that point, will you please tell us what advantage the section-holder has over the old wide frame? Certainly not ease of manipulation. The only advantage I can think of is that the tops of the sections are uncovered the same as in T supers. You have said that T supers are far better than wide frames, and now how can you say wide frames are better than T supers simply because the top-bars are left off? And now you talk about old stoves just because I won't go back to wide frames without top-bars when the length of the hive fits them.

Let me give a bit of testimony that has some bearing. One of the veterans, whose opinion I'm sure you would respect, writes, "Section-holders are far inferior to properly constructed T supers, and I congratulate you for voicing the fact." Another man writes, "I got the section-holders because Root said they were the best. I had used T supers in old Simplicity; but when they said section-holders—why, section-holders it was. But I must say I was never satisfied with them. . . . and I bought T

supers this spring to take the place of the section-holders."

In the *American Bee Journal* for June 6 occurs the question, "Which are better—T supers or wide frames without top-bars, called 'section-holders'?" Of the 24 who reply in the Question-box, some don't know; some think both are good; some think neither; one thinks section-holders better, and ten think T supers better. Pringle, Dibbern, and Doolittle prefer wide frames with top-bars. If I were obliged to give up T supers and go back to wide frames I should want top-bars on them; but I think I should want the frames deep enough so the top-bars would be a quarter of an inch above the tops of the sections.

EUCALYPTUS HONEY.

Considerable discussion has taken place with regard to the standing of honey from eucalyptus, in English and Australian journals. Much honey is obtained from eucalyptus in Australia, and the people of that country do not take it in the most kindly manner because the papers of England think the honey in question not suitable for the table. A letter from J. D. Ward, of Sydney, gives some light on the matter. He names eleven varieties, and says there are numerous others. Among them are a number of gum and box.

"Honey from box is generally considered the best, though that from iron-bark, shiny-bark, and some of the gums is excellent."

"*Not a single variety of eucalyptus yields a honey that has what is known as the eucalyptus flavor.* A few years back some bright genius mixed a small quantity of *eucalyptus* extract into a quantity of honey, and tried to sell it in England as Australian honey for its medicinal properties. Of course, it was unfit for the table, and of course it gave Australian honey a bad name. It would have been all right if sold as a medicine, and labeled '*Eucalyptus and Honey.*'"

"I am sending you a sample of honey I extracted last month (February). It is mostly iron-bark, but honey gathered entirely from iron-bark is better."

"Eucalyptus extract is a volatile oil, double-distilled from, I believe, the blue-gum only, though I have no doubt it could be obtained from other eucalypti. It is used here very largely in the treatment of colds, sore throats, etc. I send you a sample; and when you get it, if you put a few drops into half a teaspoonful of your clover or basswood honey, and stir it well, you will have eucalyptus honey that is 'not fit for the table.'"

The bottle of honey Mr. Ward was kind enough to send was, unfortunately, broken on the way, so that I had not a fair chance to test it. From the little I could scrape up to taste, I should say it was somewhat in flavor like a sample of our fall honey, not equal to the best, but by no means unfit for the table. But, as I

said, I could not judge fairly; and it is possible it may have gained a flavor from the wood of the box into which it ran. The eucalyptus extract, while it might rank high as a medicine, has a very vile flavor for use on the table.

Marengo, Ill.

[There, Dr. M., I am glad you have handled me without gloves, because it gives me a chance to "talk back." Well, in the first place I would call you "old fogey," but you are in pretty good company, and I fear I might have a buzzing of bees or something of that sort around my ears.

Now, then, as you have asked point-blank questions I will try to answer them point-blank. In the first place, in the previous issue I took back the word "booming," so I will acknowledge I am knocked out there to start on; but when you raise the question about leaving out the picture, and not saying a word in praise of the T super, praise the section-holder, and then say the T super is better, and that our packers would not know what it was—well, I just won't give in. I will tell you why. You go on the bicycle as I do among bee-keepers, and see how section-holders, modifications of them, are used—that is, topless wide frames, and you would conclude there is a very large following who would have them, no matter what we said of T supers. We are now pushing self-spacing frames, and recommending them in preference to loose-hanging; but there are thousands of bee-keepers who will not have a self-spacer, no matter what we say in favor of them. According to your reasoning every bee-keeper, nearly, ought to be a user of self-spacers because we say they are better.

Now, you ask me to name a *single feature* of the section-holder better than a T super. I will name several of them. 1. In some localities it is desirable to shift the outside row of sections to the center, and *vice versa*. You can not do that practically with the T super without a good deal of picking and fussing. Section-holders permit of handling the sections in lots of four at a time, with perfect safety. True, you say you can pick up four sections from the T super; but you must pick them up by the adjacent corners—not an easy thing, by the way, when a T super is full or partly full of sections.

2. Again, loose T tins are more or less of a nuisance, and once in a while get bent; and to have them fixed stationary is not very satisfactory.

3. The T tins take up a little space between each section; and if sections are inclined to be diamond-shape, one set of sections will point toward each other, and another set away from each other, making a difference of from $\frac{1}{8}$ to $\frac{1}{4}$ inch, depending upon the amount of play in the super. Oh, yes! you say you can and do obviate that by putting in little strips of separator stuff to fill up the cracks; and here, again, you have three little strips of separator stuff and three loose T tins to handle over every time you handle sections. But the facts prove that the very great majority of T-super users do not use those little strips of separator stuff, or any substitute; hence nearly all sections filled in T supers are more or less diamond-shape. As the section-holder does hold the section square, the average run of bee-keepers using such will have square sections that will crate.

4. But a very *important advantage* of the section-holder arrangement (not possible practically in the T super) lies in the fact that separators full width may be used, covering section-holder edges and the upright edges, and

horizontal edges of the section, not scored out for bee-ways. This, taken in connection with compression by means of a follower-board and wedge, closes up all little spaces; and the consequence is, the edges of the sections are practically free from propolis-stains, and do not therefore require scraping to the same extent that sections do from T supers. Indeed, there is no comparison. This is no theory. The honey we buy, produced in section-holders, looks better, so far as the propolized edges are concerned, than that produced in T supers. I can (or think I can) spot a T-super section every time. This compression idea I got from Mr. Manum, in Vermont, and from some other practical bee-keepers in York State, while on my first bicycle-tour. When I arrived home I incorporated it in the section-holder device as as soon as possible.

5. The great mass of bee-keepers (and that means, I think, the great majority) do not scrape the sections before putting on the market. Now, I do not guess or think, but *know*, that filled sections from section-holders with wide wood separators, and compression, present a far cleaner appearance, so far as propolis is concerned, than do those from T supers. Our position as buyers of comb honey, from all over the country, from large and small producers, places me in a position where I know whereof I speak.

6. Again, T supers require some rather nice or complicated methods of emptying them out—see our A B C, and Year Among the Bees. The section-holder arrangement may be emptied by simply removing a wedge or tightening-strip, and then all are practically loose. By turning the section-holder upside down, and pressing the two thumbs near the center, all propolis connections are broken, and the sections are loose. The manner of emptying sections out of *section-holders* is self-evident; but out of *T supers* is not so evident—at least, it has been necessary to have nice engravings made, showing each step; and as good and clear a writer as the author of "A Year Among the Bees" did not make his plan of accomplishing the result plain to me without photos.

No, sir, Dr. Miller, there are hundreds of bee-keepers who would prefer the section-holder arrangement for the reasons I have given above. It is able to stand on its own bottom; and if what I have said by way of comparison is true—and I am sure there are lots of bee-keepers who will back me in this—we are perfectly justified in saying what we firmly believe, that the section-holder arrangement is better. You evidently feel that I do not think the section-holder is quite as good as the T super, and that, because of the mechanical convenience we boom it in preference to the other, and for no other reason.

As to the matter of looks in the T super, there is not one customer in a hundred who would accept it if the cleats were all on one end as you suggest. The outside cleats on both ends are intended in lieu of hand-holes, and for the purpose of giving a symmetrical and finished appearance to the super when placed up on a hive of greater length.

You ask if I don't know that you are accustomed to the wide frames, and that your habits of working fitted them. Let me ask another question. Are you accustomed to the section-holder, and do your habits of working fit them? You are accustomed to handling hundreds and hundreds of T supers against five or six of the section-holder arrangements. How can you fairly appreciate the section-holder.

This is a question that could be argued a good deal; but the individual preference, and that old bone, "habits of working," will keep

those that have been using the one and the other largely in the line that they have been accustomed to. Now, doctor, don't you intimate again, that we recommend the section-holder because, perhaps, from a mechanical point of view, it may be more convenient, or—or—I'll jump on that "bike" for Marengo, and, arriving there, "talk it out" or chuck you in that stove that you are saving for me.—[ED.]

CALIFORNIA ECHOES.

By Rambler.

"Overeating shortens a man's life." So says truthful Dr. Stray Straws. And why does a man overeat? The dear well-meaning cherub who engineers the cook-stove thinks her "hubby" must have all the fancy dishes going—spiced, larded, sweetened, frosted; and the poor stomach, unless of cast-iron qualities, soon breaks down.

Now, I will go you one better, Dr. M. Half of the modern cooking is a waste of time and material, and a delusion and a snare. Remedy—come out to California, and bach on a bee-ranch, where you can cook your own Aunt Sally pancakes, lunch on crackers and cheese, and dyspepsia will fly away.

We are glad to note two arrivals of bee-men who propose to make California their future home—the Hon. J. M. Hambaugh of Illinois, and Mr. H. Y. Douglass, of Texas. The latter thinks California has charms even greater than the much-lauded Lone Star State. Well, he is not the only one to entertain such ideas.

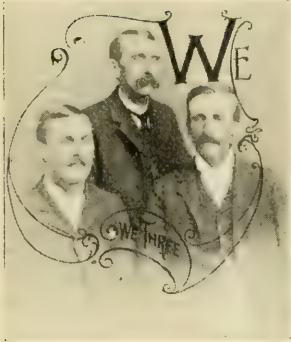
Mr. G. K. Hubbard, of Riverside, Cal., has produced over one ton of orange-blossom honey. It is a strictly fancy article, neatly labeled with labels from the "Home of the Honey-bees. There is no slipshod management about Mr. Hubbard's apiary, and a few more such expert bee-keepers would have a marked influence upon the value of our products in the markets.

The California honey-yield will not be so large as the opening of the season warranted us to expect. The greater portion of the month of May was cool and foggy. The flowers were abundant, but the elements were against the secretion of nectar, and also against the free working of the bees to secure the nectar secreted. The honey already secured is of fine quality, water-white, and well ripened. There will be many carloads to ship, but we predict that the yield as a whole will not be as large as it was in 1893. Many considered the yield then as only a half crop.

After studying every phase of the Heddon-Danzenbaker controversy I have come to the conclusion that Mr. Heddon ought to pay Danzenbaker a fair sum for inventing a hive. The D. hive will probably not cut much of a figure against the H. patent. Its chief utility so far consists in being a good advertisement for the latter, and good advertising should be paid for.

RAMBLE 135.

OFF FOR EUREKA.

By Rambler.

spent Sunday in Blocksburgh; and though it is a town of about 200 population, and has a thriving school of about 100 scholars, there are no gospel services, no Sunday-school, no church. The stores were open, and seem-

ed to do a thriving business during the day, and from early morn until late at night the two saloons were well patronized. During our sojourn in town we noticed one citizen in particular who was a daily patron of the saloon. He was at one time a large owner of land, sheep, and a squaw; he had reformed from his squaw condition, married a white woman, and now had a family of four bright children. Hard times came knocking at his door, and a mortgage upon his property had caused a relapse of his moral condition, and the cup was his daily solace. Result, a careworn wife and shame-faced children. The many elegancies in the home gave evidence of a woman of taste and culture; the piano stood unopened; there was dust upon the music-rack; no merry songs ascended from that home now. It was tears and moans and prayers. The house could not have been more sad with crape on the door. Every day at about noon the father returned from the saloon, blear-eyed, unsteady of step, and maudlin of speech; and he spent the afternoon in drunken lethargic sleep. Thus again a bitter picture of the rum-traffic thrusts itself upon our attention. Perhaps a little church here, a little Sunday-school, a little exhortation, a little prayer, even if it save not the father, would save the sons from the ruin-strewn path of the drunkard.

Another character appeared upon the streets one morning. He was a tall spare man—a long old-fashioned muzzle-loading shotgun in his hand. He said he was a bumner by trade, but just now he was acting as a guide to a party of hunters bound for Mad River. He was known as "Dad," and it was "Dad, shall I do this?" or "Dad, shall I do that?" He was the most thoroughly daddied man I ever met. He had no end to deer and bear stories. His gun, his pack-mule, and his little dog, were all special favorites. The last glimpse of his outfit was when the whole party marched jauntily into

the forest, confidently expecting to return with a ton of jerked venison.

The climate and capabilities of this portion of California found a staunch advocate in the doctor and druggist. The very best of apples and pears can be grown here. Apple-trees, five years after planting, would yield five barrels of fruit, so the doctor stated; and the pears grown here are immense and luscious. The doctor believed the apple would eventually prove more profitable here than the orange in the south. He desired to make an impression upon us, for he evidently thought we three would make thrifty settlers. The old-timers there were too lazy to work; and when they wanted meat all they had to do was to go out into the brush and shoot a deer or a wild hog. Game of all kinds abounds—quail almost in town; rabbits plentiful. Any bee-keeper wishing to keep bees in a small way, and live a retired life, can here find just what he wants, and land at \$2.00 per acre.

We three finally bade the doctor, the shoemaker, the blacksmith, and Mayor Block, good-by, and next camped upon Van Deusen River. When we arose in the morning, Bro. Pryal was missing. We knew where to find him, however; for out in the middle of the river, mounted on a rock, with pole in hand, in that favorite position of his; and how patient, and how satisfied—with bites!

We three are now passing rapidly toward Eureka, on Humboldt Bay; and what a grand drive among the mountains and the redwoods! We might say fifty miles of forests. Of course, there was now and then a space of brush, or a stage station, or a lone ranch; but now we came to the dense redwood forest, and for twelve miles we were overshadowed by the immense trees—trees fifteen feet in diameter; tall trees 150 and 200 feet or more. We three traveled leisurely, and stopped often to admire the forest. Now and then there would be a little break in the forest, and a wood-chopper's cabin or a place to make split shakes would appear.



"DAD."

We were told by the shoemaker, that, no matter how hot the weather outside the forest, we would put on our overcoats when we had gotten into it. The tops of the trees were so far

up, and the foliage so dense, that but a small amount of sun heat penetrated to the ground; and though we did not put on our overcoats, we felt a decided depression in the temperature. And how we three did appreciate the dim aisles of the woods! There was but little animal life

as a side issue and as a means of recreation, though Mr. B. is an expert photographer, having followed the business for several years.

A swarm of bees came to Mr. Brush, and, like all ingenious men, he set to work to devise a hive; and though Mr. B. had never been in-

terested in bees, had never read a journal or a book upon bee culture, yet our photo shows a veritable up-to-date dovetailed hive. The frames are not Hoffman, and the surplus sections not 1-lb.; but the nearness to modern ideas is quite surprising. The dovetailed idea was stumbled upon by using Winchester cartridge-cases, and the frames were made to fit them. The busy bees had filled their hives, and Mr. Brush is looking forward to the coming year with expectations of a bountiful harvest.

As to the sources of honey, we did not see much that would encourage a specialist. Our observations were made in October, and, not seeing the sages, the honey-flora must consist of spring flowers. Mr. Brush is

not a bachelor, but has a well-ordered household, is a leading factor in the community of Hydesville, and a staunch advocate of Humboldt Co. as a healthful and profitable portion of California; is a dyed-in-the-wool Republican, and a handy man to have in the community.



E. A. BRUSH AND APIARY.

in these dense shades, and the silent forest gave back only the echoes from our passing wagons.

We three bee-men would now and then see the busy bee, when we came to openings in the forest, indicating that some of those tall hollow trees were occupied.

Our redwood experiences, however, came to an end, and new experiences in a civilized community occupied our attention. In Hydesville we three very fortunately found a vacant photograph studio, several rooms adjoining, pleasant people downstairs. We three took possession, and for six weeks we sojourned in this pleasant town.

The observations of us three soon discovered the bee-keepers in town. The old box hive and let-'em-alone policy prevailed, and the number of colonies was not excessive. There were no complaints from the fruit-men, and we heard not a word about overstocking the field. The leading bee-keeper of Hydesville was Mr. E. A. Brush. Our acquaintance with him commenced in a peculiar way. While Mr. Wilder and I were trying to get a photo of the public school, and just as we pressed the button on the school, Mr. Brush, who lived across the street, and possessed a camera, pressed the button on us. We were oblivious of the fact until a couple of days afterward, when we were surprised and pleased to see the photo.

Mr. Brush is the ingenious man of all that portion of the country. Watches, jewelry, and guns are neatly and expeditiously repaired, and photographs taken. The latter is pursued more



CLIPPING QUEENS' WINGS.

Question.—Is it advisable to clip the queen's wings? What has been the experience with such queens? Are they more likely to be superseded by the bees than those having perfect wings?

Answer.—In nearly every apiary, where the manager can or is expected to be present during the swarming season, I should advise the clipping of all laying queens in the apiary; in fact, I should as soon think of going back to box hives as to the managing of an apiary where the queens have their wings so they could fly out with the swarm, where I was working the same for comb honey. I said, "in nearly every apiary." Why I said this was, there are a very few localities in the United States where ants are so thick on the ground, and about the hives, that it would not be safe to allow the queens to be out on the ground for any length of time, else they would be killed by

these same ants. But as such a place or places are rare exceptions, it would be safe to say that I would always clip the wings of all queens in the apiary as soon as laying. Some seemed to think that queens with clipped wings give far more trouble at swarming-time than do those having their wings; but I can not think that such have had much experience with clipped queens; for with myself I would rather manage three swarms where the queens are clipped than one whose queen can go with the swarm. Especially is this the case where there are trees in or about the apiary, whose height exceeds 15 feet; for where there are tall trees near the apiary the swarms alight so high that it is often more than they are worth to climb for them, while the clipping of the queens' wings does away with this climbing part entirely, if no after-swarms are allowed to issue. Without going over the whole ground regarding the advantages arising from clipping, it can be expressed thus: Clipping the queen's wings prevent swarms decamping, as a rule; saves the climbing of trees after swarms, or the marring of those trees by the cutting of limbs or the bruising of the same; makes it easy to separate the bees where two or more swarms come out in the air together; facilitates the hiving and managing of swarms, and gives the apiarist perfect control of the apiary during the swarming season. As to their being more liable to supersedure, an experience of 25 years says there is nothing in the claim put forth by some that such is the case; for during that time I have had very many such queens remain the profitable heads of colonies for three, four, and even five years. My impression is that superseding, as a rule, is caused by failure on the part of the queen as an egg-layer, and not on account of any clipping. I, unfortunately, in clipping a queen purchased of A. I. Root, away back in the latter seventies, clipped off a whole leg and a foot off another, besides the wings; but this seemed to make no difference, as she did her duty well for over four years, and then lost her life by carelessness on my part.

CHANGING QUEENS AT TIME OF SWARMING.

Question.—Wishing to Italianize my bees I have thought that it might be done by changing queens at time of swarming; therefore I would ask if, in hiving either one or two swarms upon the old stand, or in a new location, would it be safe (by removing the queen or queens) to let a strange queen go in with the swarm?

Answer.—The changing of queens, upon the hiving of any swarm of bees, in any place, is liable to "raise a rumpus;" and especially is this the case where the swarm is hived upon a new stand; for in this case the least disturbance or dissatisfaction will send the swarm whirling back home. The chances of failure are too great for all practical purposes, with a single warm hived in a new location. Where two or

more swarms cluster together, if the new queen is placed in a large cage made wholly of wire cloth, so that the bees can get near the queen in large numbers, and the cage hung with the clustered swarm for half an hour or so till they call her "mother," then this large swarm can be hived where we please, and the queen allowed to run in with the swarm; and, as a rule, all will go well; but as very few wish to hive two or more swarms together, and as their coming so it is possible to do this is not very frequent, did we so wish, this also is hardly practical. The chances are better where the swarm is hived in a new hive on the old stand, or allowed to return, where you have the old queen so you can control her on account of her having a clipped wing; but even then they will sometimes become so dissatisfied that they will hunt up the old hive, unless moved some distance from its old stand, and all or nearly all go back to it, or go into hives all about the yard, where in many cases they will be killed. If the above large cage is used, placing the cage over the frames before the swarm returns or is hived, and the queen allowed to remain in this cage for a day or two, the chances of success are much increased. On the whole I would not advise the changing of queens during the swarming season in any way or by any plan, for I find it to be much more annoying to try to change queens with colonies about to swarm, or with those which have lately swarmed, than with any others, or at any other time of the year; and, besides, a failure more often results.

COLOR IN BEES THE LEAST.

Question.—Did you read what the editor of GLEANINGS said on page 393 about the color of bees? If you did not, please do so now and then turn to "Bees, Queens, etc.," in their illustrated catalog and read how the Roots charge more for queens of a yellow color than they do for queens of darker hues, thus putting a premium on the yellow ones. Are they not putting color to the front in this way as much as any one? How do you reconcile this with E. R. R.'s statement that he would not give color even a favorable position? If the darker bees are the best, why not charge more for them and thus build up the best bee in the world, while S. E. Miller's owl shouts, "Who-who-who-are you?"

Answer.—It is probable that the friends Root understand what they are about, hence I shall not try to reconcile the apparent discrepancy which the questioner points out—only saying that, perhaps, friend E. R. R. will enlighten us on this matter. While on this matter of color I wish to say that this very item gives the main "handle" we have in the improvement of any stock. Mr. Miller asks, "Are the prize-winning Jersey cows the prettiest cattle?" To this I answer by asking, "Do the judges awarding the prizes select the prize-winning Durham-cattle color to award the Jersey premiums on?" All

are cattle, and it is the *color* and make-up of the Jerseys which give them the name of Jersey cattle, and whatever there is good in them. So all are bees, and it is the *color* and make-up of the *golden* bees which give them all the good qualities there is in them, and by this color I have been enabled to select a bee which has given me a greater profit than any other. If others wish to select any other bees by their color, they are at perfect liberty to do so; and I see no need of insinuating hard things against any bee-keeper who selects bees by the color *black* because he thinks they are the most profitable.

[Why, friend D., it seems to me your questioner does not take in all I have said. Evidently, the writer of said question is a little nettled over my position toward the yellow-banders, and, like all opponents, fails to give all of what the other side said. Now turn to our catalog, page 29, and read: "While we do not regard them [that is, yellow untested queens] as any better for real business, there are some who go in for beauty." And, again, under the paragraph headed "Select Tested," after describing the progeny as large and yellow, this sentence occurs: "The progeny of these queens, for real business, will probably be no better than those from the ordinary tested." This answers the whole question, it seems to me; and the mere fact that we charge more for them is no evidence that they are better, in the face of such statements concerning yellow-banders, as above given. There is nothing to reconcile at all. The very fact that we charge less for the leather stock, and more for the yellow, would induce most people to purchase in the interest of their pocketbook when it is distinctly stated that the cheaper queens are just as good. Another thing, we had to charge more for the yellow stock, because there was such an insane rage for the yellow at the time the catalog was written that we would have had no sale for the leather-colored stock.—Ed.]



WAS LANGSTROTH THE INVENTOR OF THE
MOVABLE-FRAME HIVE?

Mr. Root:—I send you this. Perhaps it may be old to you, but I send it for what it may be worth.

A. D. P. YOUNG.

Ashtabula, O.

The popular notion that Langstroth was the inventor of movable frames for bee-hives is an error. Such frames were known in Germany 30 years before 1852, the date of Langstroth's first patent. In 1843 Baron von Berlepsch made use of movable frames, and he refers the idea to a man named Prokopovitsk, who employed it in 1841. Evidence to prove this statement is obtainable at the Patent Office in Washington. Furthermore, in a book published in London in 1841, entitled the *Natural History of the Honey-bee*, on page 300 may be found a description of comb-frames hinged like the leaves of a book. By the way, the notion held by bee-farmers, that the dovetailed method of constructing hives has been patented, and must not be imitated, is a

mistake. It has never been patented, and is a common right. Anybody may manufacture such hives.

[Strictly speaking, Langstroth was not the inventor of movable frames; but he was the inventor of the first *practical movable frame—something that was of use to the world*. The leaf hive of Huber, while the frames were, in a certain sense, movable, was not a practical hive, and one would about as soon have regular box hives without movable frames. There is a certain person who seems determined that Langstroth shall have no credit for the great strides he made in bee-keeping, and that person is C. J. Robinson, who was cotemporary with Langstroth when he was doing his best work. I do not know whether the clipping above given came from C. J. R. or not, but it is all of a stripe; but I do know that Mr. Robinson *appears* to be jealous of Mr. Langstroth. Such kind of writing at this time is in keeping with the claims of those who say Columbus did not discover America simply because he found men here when he landed, so the natives must have been ahead of him. He was the first man who discovered it in such a manner as to make it of *use to the rest of the world*, and in a way that seems just now to be durable—something the Icelanders did not do, although they *touched our shores just as Huber did movable frames*. Far be it from me to detract from Huber. He is already covered with glory; but if he were living he would want none of the just credit belonging to the father of American bee-keeping.—Ed.]

DOUBLE-STORY LANGSTROTH HIVES.

I read in GLEANINGS, May 1, a report by friend Nash and Mr. N. E. Doane about 10 and 16 frame hives with large colonies of bees producing large quantities of honey. I should like to say a few words also, which I know will please you. I started in April, last year, when I ordered that Cowan extractor from you, with only three hives; that is, to put two more stories on top of those hives as an experiment, so as to test the quantity of honey that those three colonies would gather. What was the result? They filled 16 frames in ten days, with nice clover honey. Well, when that extractor arrived on Saturday evening, that next day I gave it a trial. It worked like a charm. I extracted between four and five gallons of honey from one hive which had a half-story on; but those three hives where I put those two one-story hives on top gave me eight or nine gallons apiece inside of two weeks. Yes, I side in with friend Nash and friend Doane. This year I tried it again, and I received my reward from those same hives as last season. I shall hereafter run all my hives on that scale. It is paying. There is nothing like it that I have found. Of course, we must keep our colonies strong—that is, they must have a good laying queen. I have mostly hybrid bees. It is very hard to get queens mated with Italian drones, on account of so many parties having a few hives for their own use. Then another obstacle is, the woods are so close to our doors; but nevertheless my bees give good results in gathering honey.

GEORGE SCHAFER.

New Orleans, La., June 1.



THE RIGHT AND WRONG KIND OF FRAME-SPACERS.

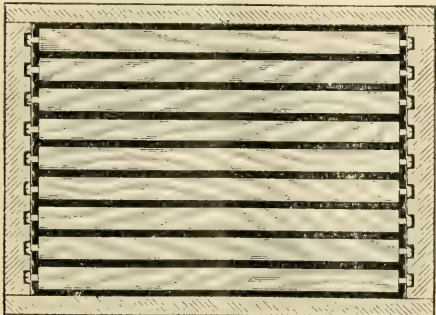
THE WANDER SELF SPACING FRAME HIVE.

By Eugene A. Wander.

The body of the hive can be the same as any in use. The hives with which I experimented are of the Quinby, Langstroth, and Gallup types, with the addition of slideways, which are affixed at opposite sides. The frames may



also be those used in other hives with the addition of pins or screws driven or screwed in at their respective places in end-bars; viz., two in each end-bar about one inch from the end. The slideways are so adjusted that they slide smoothly and easily. Closed frames with comb can easily be planed off on sides, and used. I prefer the slideways made by cutting parallel mortises in inside of ends of hive-body, and fastening flat strips of tin to the ridge remaining, as will be seen below.



It is the most perfect and easy hive to manipulate that I know of, being able to do almost every possible thing with it with ease, such as moving or shipping without loss of time in preparation, and possibility of fixtures getting loose and killing the bees; also perfect spacing through the center, top, and bottom, and at sides of frames; reversing frames or hives; ease in withdrawing or inserting frames without destroying bees or danger of killing the queen;

the frames do not have to be pried loose in taking out, and most other features which will readily be recognized upon examination. Every thing is interchangeable. The little extra in cost of making the hive is soon balanced by profit, to say nothing of the pleasure of handling it.

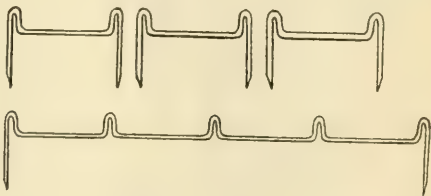
EUGENE A. WANDER.

Hartford, Conn., May 18.

[Perhaps I ought to say that spacing-devices that are part and parcel of the hive, and not of the frames themselves, have not proven to be very popular among bee-keepers. I have no doubt that friend Wander can remove the frames; but he by his plan loses some very important advantages. For instance, suppose he wants to examine the brood-nest. He desires to take out an outside frame, we will say, full of honey. In order to put in the center of said brood-nest an empty comb, and yet keep all the rest of the combs in their same relative position, he must remove at least half of the frames, then put each one back in a notch or trough next to the position it formerly occupied, in order to give frame-space in the center of the hive. Suppose, now, the spacers were a part of the brood-frames themselves. We simply remove the outside frame containing honey, and shove the whole four or five frames, as the case may be, over *en masse* at one operation, and in less time than friend Wander can remove a single frame. There is now space on the center of the brood-nest to insert an empty comb for eggs. I have mentioned only one disadvantage; but there are others, though it is hardly worth while to give them, and I know of no advantage that this plan has over spacing-devices attached to the frames themselves. In saying this I do not wish to throw cold water on Mr. Wander's invention, but it is a duty I owe to the younger generation of bee-keepers to inform them *why* such self-spacing arrangements have not proven to be popular.

And here is another one that employs the same principle—or, rather, the spacing-arrangement is in the rabbeted part of the hive:

I have thought of a self-spacing device I will use—a staple made of copper wire, $\frac{1}{8}$ inch thick, and driven into the rabbets of the front and rear end-boards of the hive, and made as shown at the top. The staple will support



the frame, and do the spacing, while keeping the bees from sticking the frames fast to the boards. The wire being $\frac{1}{8}$, the bends will just make the quarter-inch space, and will be better than tins, nails, or tacks, not causing so much moisture as tins, and better for winter.

I had thought of making the support of one piece of $\frac{1}{8}$ wire, as shown in the bottom.

Cuba, Kan., May 22. WM. H. EAGERTY.

This is open to the same objection as the one previously described—namely, the impracticality

bility of shoving a certain portion of the brood-nest from one side or the other of the hive, or of picking up three or four more frames at a time. When the spacers are on the frames, the frames may be picked up, and the fingers grip hold of the outside edges of the outside frames, so there is no danger that the intermediate frame or frames will knock together, because the spacers hold them apart just as when in the hive.

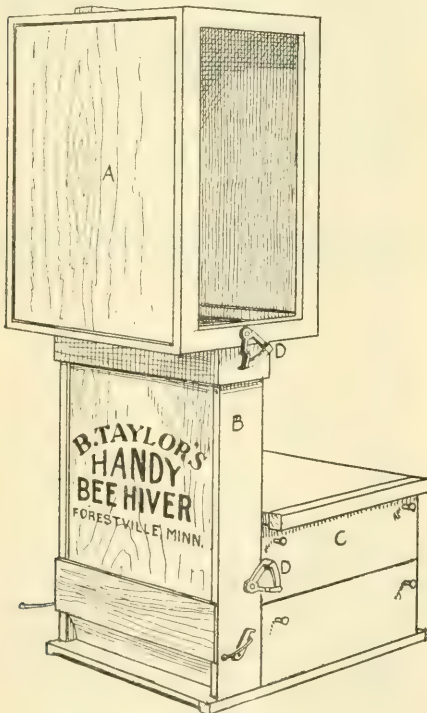
Friend Eagerty's spacers, if, instead of being put in the rabbets, were put in the frames themselves, along the top-bars or end-bars, would make very good spacers—that is, as shown at the top of the engraving. When I first looked it over I thought that was his idea, and I wrote him I thought it was very good; but I have since observed he would make them a part of the hive, and here is where he would make his mistake, as I have already pointed out. Friend Eagerty's plan of staples, especially the second one, is quite old, and has been, I think, illustrated and described in our columns before.—Ed.]

ANOTHER HIVER

"NO PROFIT IN ALL THESE TRAPS TO A HONEY-PRODUCER;" INVENTIONS AND THEIR INVENTORS.

By B. Taylor.

Mr. Root:—On page 402, May 15th, you give a cut of Mr. Alley's latest swarm-catcher. I send you to-day a photo to show that I have been all over this field. The picture was taken four



years ago. The idea is the same as Alley's, except that my device as illustrated has no zinc for the bees to work through. The entrance to

the hive is not interfered with in any way; but when a swarm begins to rush out, the entrance is closed by their force, and the whole swarm is caught with the queen. I tried the zinc and cones, but this is much better. I lay no claim to this idea. I believe this device will work as well as any that can be made; but if any person ever makes one that is practical—that is, profitable to honey-producers—I give notice I will not claim priority, for I have abandoned all hope of making any of these traps profitable. Friend Root, I am almost ashamed to send you this, for it begins to look as though I were going to claim every thing that inventors bring out. The fact is, I have dreamed out and tried a vast range of ideas on apiarian subjects; have tried them until I have come to the conclusion that there is no profit in all these traps to a honey-producer. I believe that the inventors and patentees and makers of these things are the only ones who are likely to get any profit; and the outlook for them is not good enough to tempt me to further effort. I abandon the field to others, and will give any one who makes one of these self-hiving inventions practically useful a handsome sum for the right to use it.

In the articles I am now writing for the *Bee-keepers' Review* I am giving my sincerest convictions in regard to each question discussed. This may look like throwing cold water on inventors; but it is not, for I regard mechanical inventors as the greatest and most useful of the human race. I was talking with a very bright teacher lately, and made the above claim. He disputed, and claimed that a teacher standing before a class of boys and girls, and directing their developing minds, as the grandest human character; but I said, "Mr. K., I fear that, without the aid of mechanical inventors, you and your class would cut a sorry figure—no shirt nor pants, no hat nor shoes, and your scholars in the same fix; no schoolhouse, no books, not even a birch gad to wallop the unruly with; for the moment you break off a sprout and strip it you begin an invention." Reader, stop and reflect in what kind of state the human family would be but for mechanical inventors; and see if you are not forced to agree that they are the greatest and most useful of human beings.

Forestville, Minn.

[B. Taylor is more frank than most of us would be. An inventor, when he gets up something, and has it patented, whether it is practical and valuable or not, is pretty apt to feel that it is the best thing of the kind. In fact, he feels toward it as a fond father does toward a babe. But it is the every-day life that demonstrates the value of these inventions. I know it is true a lot of useless traps are annually poured upon the public; but that public, fortunately, does not very often adopt a thing unless there is use in it.

While your handy bee-hiver, friend T., is not practicable, it represents an idea from which further ideas may develop.

I should hate to discuss that question—which

is the greater benefactor, the schoolteacher or the inventor? It would be like the old discussion in our school-days, that could be argued *ad infinitum*—the beauties of spring versus those of fall.—ED.]

THOSE NON-SWARMING AND NON-STINGING BEES.

By Henry Alley.

Friend Root:—You wish to know about the non-swarming and non-stinging bees. I have this to say of them: In May, 1894, I formed a six-frame nucleus for the purpose of preserving some fine drones to be used in an out-apiary two miles from home. Of course, the colony was queenless, or the drones might have been destroyed. In July the drones had nearly all disappeared from this hive; but in the meantime a queen had been reared, and the young bees were hatching out, and it seemed that they were more than commonly beautiful, and of a leather color. The colony was taken home, more combs added, and in a few weeks it was one of the most powerful hives of bees in my yard. This colony was used to rear cells in an upper story the rest of the season; and before the season closed they had built 250 queen-cells of the finest quality; that is, the queens from these cells were extra fine. You want to know, too, whether the bees are stingless. Well, I am hardly able to reply. I can say that not even one bee of this particular hive has ever used its sting on me; nevertheless, I presume these bees have stings, yet they do not seem to know how to use them. I have opened this hive not less than fifty times, but never knew a bee to take wing or to sting during any operation. Practically this is a strain of non-stinging bees.

Now about the non-swarming part. I have had this strain of bees in my apiary six years, and have never had a swarm of bees from them; and, what is more, I have never heard of any one ever having a swarm from that strain. It strikes me that I can safely claim that they are non-swarmers.

About the colony spoken of, I will say that they are very industrious and active, and wintered finely. They are now the strongest colony in my apiary, and have drones in abundance. I propose to use the drones of this hive for my young queens that will be reared from other fine queens of the same strain now in my apiary. The bees are leather-colored, very industrious, hardy, and gentle. I believe in propagating a race of bees of this kind. Don't you?

Wenham, Mass.

HENRY ALLEY.

[Where any thing is advertised out of the ordinary we generally require an explanation. In our last issue Mr. Alley advertised non-swarming and non-stinging bees. I wrote him, asking him whether he had bees that *could* not sting, or bees that, under ordinary circumstances, *would* not, although having the power to do so if necessary, and the above is his explanation.—ED.]

SHALLOW BROOD-CHAMBERS.

MR. HEDDON REPLIES TO THE EDITORIAL ON P. 409.

Bro. Root:—I am quite surprised at the import of your editorial on page 409. Either you have not yet got the hang of handling my hive (and you must use more than one to ever get it) or I have no knowledge, either practical or theoretical, of handling the old styles, or you never could come to the conclusion that you could compete with a divisible brood-chamber in rapidly determining the true condition of the colonies. I think it would be very difficult to convince those who have tested my hives that any style of single brood-chamber or deep brood-chamber can for a moment compete. You had to open your hive at the top, pull out a division-board, and then pry along one half of your frames with that wire nail before you could determine any thing, hardly, beyond what might be determined from the outside without opening the hive at all. This gave plenty of time for robbers to get into your hive, if any were about, as is usually the case at such times. With the divisible brood-chamber I do not remove the cover at all, but split it in two in the middle, turn up the upper half, and look into both halves at once, or as nearly at once as possible for one not cross-eyed, and put back the little case before a robber could get a taste. My opinion is, that I can handle hives for this purpose somewhere about six or ten to your one.

Yes, you were correct regarding the reason I made the top and bottom bars to my frames only $\frac{3}{4}$ wide, which is just the width that a brood-comb is thick. Now, you find that, between the shallow brood-cases, the bees will put in brace-combs. Certainly they will; but all they put in amounts to more of a bugbear than a real detriment. These brace-combs have some little advantages, and the annoyance is very slight. Those who have learned the great advantages of the use of a divisible brood-chamber look upon these brace-combs as of no moment. I trust that bee-keepers who have not used the hive will remember that, where an opening is made between sets of frames so near the bottom of a brooding-apartment, much fewer brace-combs are built therein.

What you state concerning the space in the middle of the brood-nest retarding the production of brood is, in my opinion, a groundless theory from first to last, wholly in opposition to practical results. It's a part and parcel of the same theory that hives should be square or tall, in order that the brood-nest may be spherical in form. The Bingham eight-frame hive, containing frames holding combs $4\frac{1}{2}$ inches deep and 22 inches long, will show as much brood, and I believe more, than any other style of hive. We have been terribly handicapped in adapting hives to the bee-master, because of false theories regarding adaptability to the bees.

I hardly know why you mention the matter of burr-combs between the top of the brood-chamber and bottom of the surplus-receptacles. I can not see that this is a fit subject, when comparing different hives, for they are *all* subject to the same laws and conditions; whether the brood-chamber is divisible or not makes no difference. At the top of the brood-chamber, where we place our surplus-cases, with *all* hives, where brace-combs are much more liable to be built, and here I always use and for ever advocate the break-joint honey-board. Those who oppose it now will use it later. I assert this from twenty-eight years' experience in bee-keeping, and more than twenty years' use of thick and deep top-bars.

Will you allow me to thank Mr. Richardson for his truthful statement concerning the merits of a divisible brood-chamber, etc., as found in my hive, presented to your readers on page 450? I must confess I can not agree with my friend and collaborer on the point he touches concerning my being derelict in my *duty*, in not better advertising the hive. Surely many bee-keepers, naturally would, and *have* discovered its merits. To a certain extent they have published these merits to the world, and would have done so, and so would I, to a much greater extent, had it not been that we were refused space in the journals. I think I have done pretty well in my book "Success in Bee Culture;" and now in my pamphlet, just issued, I think the job is completed. I can not understand Bro. Richardson's allusion to the matter of others inventing what I did, perhaps, had I not patented my invention, or had I better explained the same. One who can not

fully understand the merits and working of the hive, from the explanations I have made, and immediately after the patent was issued, certainly never could alone have discovered its merits. If I am to blame for not giving it wider advertising, at an earlier date, what shall we say of those who now claim to have discovered and used some of its meritorious features, and yet never published a word to the world concerning them? There is only one thing we can say, and perhaps that had better not be said.

JAMES HEDDON.

Dowagiac, Mich., June 7.

[As I have not yet had reason to change my views as expressed in the editorial under consideration, I will let Mr. Heddon's reply stand on its own merits, without further comment.—ED.]



It is said there are exceptions to all rules. We usually say that a swarm never comes forth unless they have something that they regard as a queen, either young or old. We had the exception this morning that proves the rule. Of course, they went back.

SOME of our apicultural writers are having a little sport over the way in which the editor of the *Cosmopolitan* "put a head" on W. Z. Hutchinson's articles, designating the bee as masculine. Well, we can quite excuse his ignorance in view of the splendid way in which the magazine sets forth W. Z. H.'s beautiful photos.

WE tried a swarm-catcher last week—not the automatic device, but a large cage with a wide mouth to clap over the entrance as the bees rush out. Perhaps we were too late in getting it applied; but it didn't work as we thought it ought to. One swallow doesn't make a summer; but I suspect bees do not feel really satisfied unless they have had a big "pow wow" in the air.

BASSWOODS are blooming beautifully; and the frequent and warm rains that we are now having give promise of an abundant honey flow from that source. Letters go to show that white clover has been largely a failure almost everywhere. If any one has secured a fine crop of white-clover honey, let him hold up his hand. There is going to be a crop of honey in California; but, as Rambler says elsewhere, it will not be such a very large one after all.

It comes to us in a sort of roundabout way that there are some bee-keepers in Canada who are producing sugar honey—that is, a so-called honey produced by feeding sugar to the bees. There is little or none of that thing going on in this country, I believe, and I really hope there never will be. In Canada, some of the prominent bee-keepers are taking vigorous measures to keep such honey out of the market, and I hope they will, for I can not believe that the

average dealer here or in Canada will sell it for just what it is, for then it would not sell at all.

NEW VS. OLD METHODS OF RAISING CELLS.

WE have something over 250 queen-rearing colonies in our home yard. After having tried very faithfully all the later methods, such as artificial cell-cups, raising cells in the upper story of a strong colony having a queen in the lower story separated by a perforated zinc, and all such new methods, we have gone back to the good old ways. The artificial cell-cups are too expensive to make—at least, for us; too expensive to put in royal jelly and larvae; and then, worse than all, we find that too large a percentage of them are rejected. Completing the cells in the upper story of a strong colony with a queen below, works *sometimes*, and sometimes not. The uncertainty of the plan has caused us to abandon it for a good strong colony of *queenless* bees. We save all our cell-cups, and cells from first-class breeders, and put the frame or frames containing them into the queenless colony or colonies on hand for that purpose. There is thus a certainty of results; and where we are selling as many queens as we are now, we always have quite a number of partially completed cells from choice breeders that have been sold out a few days previously. By this plan our cells really cost us nothing, any more than the time of taking out the frames with the cells thereon, and putting them into one or two special queenless colonies, by them to be completed.

WIDE AND NARROW TOP-BARS IN SECTIONAL OR DOUBLE-BROOD-NEST HIVES, AND THEIR EFFECT UPON BROOD-ING-SPACE.

THE double-brood-chamber Danzenbaker hive still seems unfavorable for the rearing of a full amount of brood. We find that a queen will fill clear full one section of the brood-nest before she will go into the other. I feel more convinced than ever that wide top-bars for double brood-nests or sectional brood-nests are not the thing.

A year or so ago the bees all died in our Heddon hive, and combs got wormy. This spring we got out the comb, put in frames of foundation, and hived a swarm on them. The top-bars of these frames are $\frac{3}{4}$ x $\frac{1}{4}$. The queen and bees seem to be working fairly well in both stories at this writing, although I can see there is a *tendency* on the part of the queen to accept one section rather than both at the same time. I can not but feel that the slightest barrier through the center of the brood-nest is somewhat of an obstruction, and a waste of brood-space. The narrower this barrier or top-bar, the less the obstruction. But wide top-bars, or wide and deep either, for that matter, do not seem to hinder the *bees*. In fact, they may be considered an advantage in that they keep the

queen below, and allow the bees to put surplus where we want it.

BEES AND FRUIT.

AN interesting paper on raising fruit was read recently before the Ravenna Grange by Mr. Smith Sanford. After stating the conditions necessary for that business, and the enemies and drawbacks to contend with, the matter of the influence of bees on fruit came up. Mr. Sapp gave the following strong testimonial as to the value of bees to the fruit-grower:

Mr. Sapp referred to the part that bees take in successful orcharding. He referred to orchards which had produced abundant crops of fruit when a number of colonies of bees had been kept near the orchards, that had partially or completely failed after the removal of the bees.

As the above comes from outside of our own ranks, it is of special interest. We are indebted to the *Ohio Farmer* for the clipping.

THE APICULTURAL EXPERIMENTS, AS REPORTED IN THE REVIEW.

I AM always glad to read the articles in the *Review*, by R. L. Taylor, detailing his experiments at the apicultural station, providing I can study out the conclusion. But several times I have found myself almost unable to gather the lessons taught by the tables. I suppose it is my own thick-headedness, but I have heard others speak of it several times. If our friend R. L. T. would help us to translate them a little more it would add greatly to the value of the report. I was about giving an editorial summary of the one in the *Review* of June 10. I may be thick-headed; but for the life of me I could not boil it down. I kept still, however, and said to my co-worker, our proof-reader and stenographer, in my usual tone, "I wish you would make an editorial summary of this." I have sometimes asked him to do this before, when I have been pressed for time. The next day I came around and said, "Well, have you got that summary?"

"No," said he, "that is a sticker."

"Have you read it?" said I.

"Yes, especially the reading-matter; and while there are many interesting and valuable facts all through the article, I can not bring them all to a focus so as to state the result of the problem as a whole."

I know my friend Mr. Taylor will not take it unkindly when I say I am not fault-finding; but I make it as a criticism, hoping that it will enable some of us to understand the tables a little better. He sometimes gives us a summary, or the gist of the matter in a nutshell, and thus unquestionably throws much light on the tables, making their meaning more intelligible. Perhaps I ought to be able to do this; but surely Mr. Taylor can interpret his own figures more correctly.

I am willing to acknowledge that I have my fair share of thick-headedness; but some of the brightest bee-keepers I know of acknowledge that they have been greatly indebted to GLEANINGS for the editorial summaries of the Michigan apicultural reports, as they were not able to understand the original report in the *Review*. I should like to give the names of some of these bee-keepers; but for fear they would not like the mild insinuation that they are thick-headed, like myself, I forbear.

The point is right here: There are very few readers who will take the time to study out a set of figures, or read a thing through several times to get its meaning. If they do not catch the meaning at first glance they will simply skip it.

FOUL BROOD; HOW TO GET RID OF IT AMONG NEIGHBORS; THE POLICY AT THE HOME OF THE HONEY-BEES.

WE recently got track of a bad case of foul brood in our own county. Some time ago I took a bicycle-trip down to investigate. Sure enough, it was a rotten case, and needed complete extermination. As it was only about seven miles from us, I offered to furnish the party foundation, frames, and hives, if need be, all new and complete, free of charge, on condition that he would burn frames, hive, and all, but save the bees if he liked, by driving them on to frames of clean foundation. We feel that we can not afford to have that dread disease within even seven miles of us.

I think it greatly behooves all intelligent and progressive bee-keepers, when they know of cases of foul brood, to offer, if need be, the owner of the infested stock their services, and furnish them foundation, frames, and a new hive. Our apiary is perfectly healthy, and we have little to fear of the disease making any serious inroads on us again, because we feel that we are able to nip it in the bud. But notwithstanding this, we take every precaution, and therefore sell nothing but queens by mail. The business of selling nuclei or bees by the pound was discontinued over a year ago. The mere fact that foul brood broke out in our own apiary some years ago, and reappeared in another yard some five miles south of us two years ago, and again within a few days past in an apiary seven miles north of us, leads us to believe our policy is wise. But we feel perfect safety in selling queens, because we never knew of a case where a queen carried foul brood from one colony to another. A very few such cases have been reported; but there are so many other ways in which it could have been carried, I have been inclined to doubt them all. In fact, as our older readers have known, when we had foul brood we carried queens from diseased colonies and introduced them into perfectly healthy ones. The experiment was repeated a good many times, but foul brood never appeared where the queen was put.



FLORIDA TRAVELS.

There are a good many surprises in Florida. You get a little homesick, and every thing looks dull and dreary; the towns look dilapidated and run down, and the landscape looks like a barren desert. But all of a sudden you come across some example of luxuriance and productiveness, like the grape-fruit tree near friend Stacey's house. By the way, I want to say a word more in regard to this grape-fruit tree. In mentioning the matter, several friends assured me that, especially in Florida, the trees around most houses grow with remarkable vigor, and no theory has yet seemed to explain the matter fully. Some suggest that the shade of the house conserves fertility; others, that the waste and trash from the average family makes the ground rich; and one friend, whom I shall mention further on, goes so far as to gather all the trees, trash, rubbish, and almost every thing he can lay his hands on, to mulch the ground around his orange-trees. He claims that mulching and shading are elements of fertility.

Well, there are other surprises that meet you in Florida, especially after you have begun to think the little towns and villages do not amount to very much—and some of the villages and railroad stations are, in fact, not much more than a store and postoffice; but now and then you see something that upsets the idea that there is nothing "going on" in Florida. A startling surprise awaited me when I set foot in the city of Tampa. The total population of the place, I am told, is about 18,000. There are beautiful paved streets, fine buildings, a street-car line that runs to Ybor City (pronounced Eebor); and, most astonishing of all, is to find away out there in the wilderness and sandy wastes the Tampa Bay Hotel. The hotel—well, look at the picture on the opposite page, and then believe me when I tell you it lacks only a few feet of being a quarter of a mile long. These great hotels in Florida are, in some respects, a sort of manufactory. They manufacture right on the premises, by means of steam and electricity, and skilled artisans, every thing to make a traveler comfortable. The nicest water is hunted up, even if they have to go many miles for it, and a great engine sends it where it is wanted. The same engine furnishes power for driving fans, lifting elevators, and helping about the kitchen wherever power will help. The kitchen is a sort of manufactory where the best eatables are made in quantities sufficient to supply a considerable town. I have forgotten how many guests this hotel accommodates, but it is something like a thousand; and at the time I was there I was told the rooms were all occupied. The picture gives you some idea of the grounds and surroundings, and of the beautiful drives and walks, made of Florida shells, which I have already described; also the trees and tropical plants and shrubbery. In the foreground you have a view of a beautiful iron bridge that leads to the hotel. Various greenhouses and conservatories furnish every thing to make all the rare and tropical exotic plants feel at home that are to be found anywhere on the face of the earth. The architecture is, I believe, what is called Moorish. The building is all of brick, and this was a great relief to me, because, you remember, I had been somewhat disgusted with the make-believe imitations of stone, made out of sheet-iron and paint. There is not any

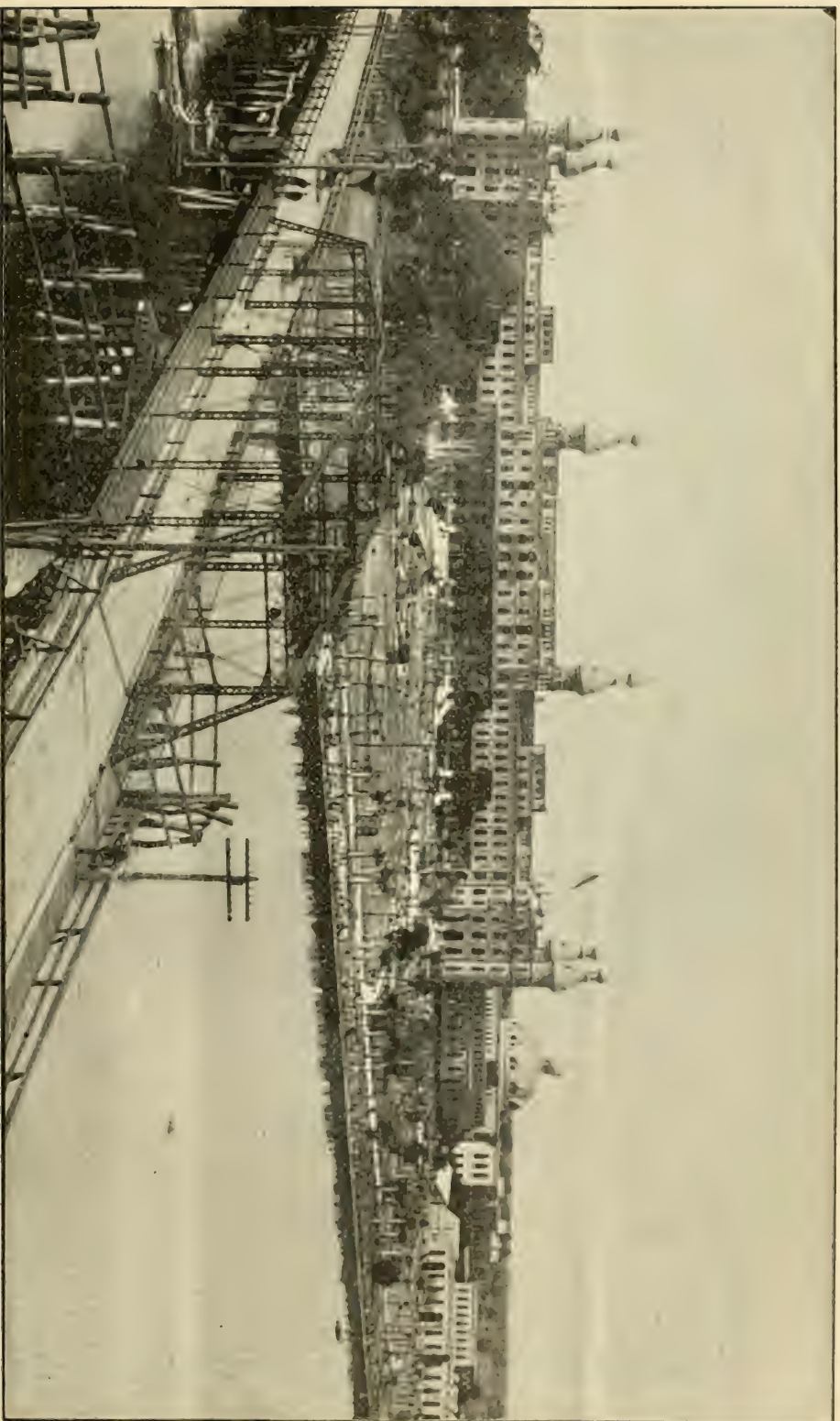
whitewash to drop off nor show through on the Tampa Bay Hotel. Some of you may be inquisitive as to what should make such a thriving live city as Tampa, away down in that part of Florida. Well, I was just thinking I should much rather say nothing about the principal business of the city and vicinity; for, to tell the truth, Tampa is said to be almost headquarters for the whole world in the manufacture of cigars. I did not visit any of these factories, although I was invited to do so. When I am an invited guest, and my friends take pains to show me around, I usually feel bound to be pleased and to look happy, learning about things that I never knew of before; but if I should look pleased and happy while being shown over a great manufactory that confines its operations to cigars and tobacco, I am afraid I should not sleep well when it came night time.

Out a little beyond Ybor City I found some beautiful gardens carried on by a system of irrigation, quite extensive, and fully up to the times. Ybor is the name of the most wealthy man in Tampa, and he was greatly instrumental in building it up. He is a Spaniard, and has extensive tobacco-plantations in the island of Cuba. For some reason, unknown to me, the locality of Tampa City seems to be better for his line of business than Cuba.

While I was looking over the big hotel I was greatly surprised to see a strange race of people, unlike any thing I had ever seen before. As the train pulled up, a lot of nicely dressed pages, or waiters, came to take charge of the trainload of visitors. These waiters were mostly young boys, say in their teens. Their style of dress was foreign, perhaps somewhat after the oriental style; and some of these young fellows were sufficiently good-looking (notwithstanding their swarthy skin) to make many of the girls envious. They spoke some foreign tongue that I took to be Spanish. Let me say to their credit I found them to be exceedingly courteous and obliging whenever I asked any questions of any sort.

At Lakeland I found W. C. Green, who had given me a very warm invitation to come and see him. Friend Green is a genius, and an odd genius. His hives are arranged in groups in his dooryard. Some of the hives are very tastily located in an ornamental summer-house. Almost as soon as I came into the dooryard he commenced to show me his beautifully marked Italians. He began opening one of his hives, with so little ceremony that I dodged back; and he laughed at me some to think that A. I. Root should be afraid of bees. I told him I was not a bit afraid to open any hive in his yard, and that without smoke or veil; but if he was going to yank off covers in the way he had just commenced, I thought I would keep at a safe distance. He said his bees were properly trained, and would not sting, even if one did burst into their domains without so much as even a gentle rap to let them know you are coming. Well, the bees came out and filled the air. They buzzed around his ears, and I felt almost sure he would get stung most severely; but he did not get a sting. The next day, however, he attempted to do the same thing with a log gum that we found away out in the woods in a neighbor's yard, and both he and the owner got stung until they were quite ready to beat a retreat. Friend G. has a pretty home, and quite a family of boys and girls.

In the afternoon we started out on an exploring expedition. Mr. H. S. Galloway has nine acres of strawberries. His variety, which he calls the Newnan, is a perfect-blossoming kind. I found his strawberry-ranch on ground so low and wet that water stood in the furrows over a



HOTEL AT TAMPA BAY, FLORIDA.

great part of the patch. I commenced at once recommending him to put in tiles, and get rid of all the water. Friend Green told me I might know all about strawberry-raising in Ohio, but that I did not understand it in Florida. Of course, the frost had played mischief with the early crop. Strawberries are planted here in double rows, about three feet apart. These double rows have the plants a foot from each other in every direction, and they are permitted to bear but one crop. After they are done fruiting they are allowed to put out runners enough to make a new plantation in the fall. The fall-set plants bear the crop in February and March. We got over on a protected side of the woods where the tall timber had kept off the frost; and I was delighted to find here and there ripe strawberries in the month of February. Somebody has said (I do not know who) that the strawberries of Florida lack the fine flavor of those grown away up north, where we have zero weather, and snow as high as the fences; but when I got a taste of a fairly ripened berry I declared at once it was the most delicious strawberry or fruit of any kind I ever tasted in my life. After I had sampled quite a number it occurred to me they might be more valuable than I knew; so I remarked:

"By the way, friend Galloway, you say you have already marketed a few. What price do you get for them at this season of the year, if I may inquire?"

"Oh! I have an offer of \$1.50 a quart for some I expect to get off perhaps to-morrow."

"Dollar and a half a quart!" repeated I, as I took a great luscious berry away from my mouth, where it was *almost* safely lodged. "Now, look here, my good friend," I continued, "perhaps I owe you an apology for helping myself so freely. I do not think I want very many, even if they are so delicious, if *that* is what you are getting for them."

"Oh! help yourself—help yourself, Mr. Root. When I told you the price I am offered I did not think a word about those you have been eating. And, by the way, this price is a little extra on account of the freezes. I think it is about the best figure I was ever offered."

A few weeks afterward, while I was in Jacksonville, I found out how they managed to be able to pay such a price. Little cards were up on the sidewalk, advertising ice-cream with real strawberries; and the strawberries were right close to the notice, to let people see they were *genuine*. The dishes of cream were furnished at the usual price; but they managed to make one quart of strawberries make a *good many* dishes. When I asked friend Galloway about manuring his ground he replied that he had settled down on Bowker's strawberry fertilizer, applied to his ground at the rate of 500 lbs. per acre.

The next neighbor we called on was a bee-keeper; and as he is right on the shores of one of the beautiful lakes, he does quite a little in the way of catching fish. Oh! I did not tell you that Lakeland is *surrounded* by beautiful lakes. Friend Cochran (where we were visiting) had a contract to supply six dozen speckled perch at a certain hour in the afternoon. I suggested to friend Green that it was not fair to hinder a man when he was trying to fill an order, and that he and I should get into the boat and help him by catching fish too. Well, I did help. I caught *two* beautiful perch while friend Cochran caught *twenty-six*. I had a hook and line and pole just like his own; and I dropped my hook into the water just as he did, and yet he was catching fish all the time and I was not. Is there a trade or skill in just dropping a baited hook into the water and then watching for the cork to bob up and down?

Indeed there is. The old veteran fisherman could tell at a glance about where the perch would be likely to be hidden near certain water-plants. Then he knew how to drop the line without making a great splatter and racket. Furthermore, he kept his line moving, just about enough to coax the fish without frightening them away. Now, friend C. is an expert in his own line of work; and I am sure friend Green can testify with me that his good wife is *also* an expert in her line of work; and that line consisted in getting us a grand good dinner, mainly from the fish we had just caught in the lake. By the way, what do you suppose these speckled perch that are caught by the hundred, sometimes, in a single afternoon, bring in the markets down in Florida? Why, only *three cents* each. They do not sell fish by the pound down there. They are like eggs—so much a dozen.

Now I shall catch it again for what I am going to tell; that is, some of the friends who think I am inducing people to move down to Florida just to be disappointed, may be will grumble some more. The story is this: Not very far from friend Galloway's strawberry-ranch a piece of ground was lately sold for \$1.25 per acre. Friend Green, with whom I was visiting, was the lucky purchaser. It was right adjoining the railroad, besides, about seven or eight miles from Lakeland, and a steam-sawmill was located right there, cutting up lumber at the time of the purchase. After friend Green had bought the tract of land, he took the proprietor of the sawmill over on it and sold trees enough from the tract to more than pay the purchase money. The mill-man paid so much apiece for the trees just where they stood in the woods, so friend Green had no expense whatever to stand in the matter. A nice large straight pine-tree brought—how much do you suppose? Only 20 cts.; and some of them that were not quite so nice sold for two for a quarter. Well, 7 trees on an acre, at 20 cts. apiece, paid for the land. Then the railroad company offered to make a flag-station right there by the sawmill if friend Green would put up a little building, and the building was already up. I asked friend Galloway before I left what he considered his best strawberry ground worth per acre. He said it was not for sale, but finally decided he would not want to part with it for less than \$100 an acre; and the land that costs only \$1.25 is hardly a mile away; and I thought, from the looks of it, it might be exactly as good. You may ask why such chances are left "lying around loose." Well, one reason is that people are too lazy to go to work and build up a business as friend Galloway has. Another thing, there are a great many who do not seem to have the ability to make the wilderness blossom as the rose. Even if they were to undertake it they would have bad luck here and there, and perhaps everywhere. I should enjoy going into those Florida wilds and building up a home; and I am just conceited enough to think I could make things grow as those strawberries do, and as that grape-fruit tree does I was telling you about.

It was Saturday afternoon. I was getting so much behind with my appointments that I was obliged to push on. I had half an hour to wait for a train. I had read newspapers, and read over the bills stuck up over the walls of the depot, and felt a longing for something that would help me study my Sunday-school lesson for the morrow. I went over to the drugstore and asked them if they had any periodical to sell that would answer my purpose. Although they kept a sort of news depot, the proprietor told me they never had any calls for any thing in that line. When I looked disappointed he

said he had a copy of the *Sunday-school Times* that he used himself that I might have if it would be an accommodation. I had hardly had a glimpse of my old home paper during the whole time I was in Florida; and I tell you I just felt happy as I sat down and went over the pages so familiar to my eye. It was meeting an old friend away off in the desert wilds, and it cured me of being homesick, straightway.

OUR HOMES.

And God saw that the wickedness of man was great in the earth, and that every imagination of the thoughts of his heart was only evil continually. —GEN. 6:5.

On the evening of Wednesday, June 5, it was my good fortune to be present at the address of Anthony Comstock, given at the State Sunday-school Convention in Cleveland. Probably every reader of GLEANINGS knows something of the work of Anthony Comstock. For a period of almost 25 years his name has been almost a household word when the subject of social purity and the morals of our children have been under discussion. Previous to Mr. Comstock's vigorous prosecution, vile and indecent books were passed about, and swapped back and forth, even by schoolboys; but for the past fifteen or twenty years I have hardly known of such a thing, unless it was to make mention of the apprehension and arrest of the man or boy who started it; and they almost always of late years get brought to justice by the time they have got well started. Now for the discourse:

The main part of the speaker's talk centered about the imagination. He said that even a child began, and that, too, at a very early age, to people its thoughts with images. In fact, he put it in something this way: There is in the heart of every human being a sort of picture-gallery—a little room, we might call it, the walls of which are adorned with pictures of some kind. If the parents, the teachers, the pastor, the Sunday-school teachers, and others, do not see to it that the apartment within the little heart of every child is hung with good, wholesome, and *pure* pictures, the prince of darkness will surely see to it that these little walls are adorned with pictures of some kind, and that very quickly; and these pictures, too, will be of a very impure and low description; and it is the character of these pictures that fixes the thoughts, the actions, and the life, of the coming human being. If the imagination is allowed to dwell on fancies of a vile character, the future life of the person soon becomes *vile*. The subject of the discourse, I believe, was, "Our Children and their Environments." My good friend, if you have no children of your own, you have brothers and sisters, or relatives—children whom you wish to grow up good and pure and useful. What are their environments? What are the pictures they see? Are they permitted to select their own pictures and their own reading, without any parent or guardian to direct them? I have often told you of the sad stories that I have heard during my visits at our county jail. A boy borrowed a highwayman's book. I believe it was the history of Jesse James. I do not know whether the book was put out with the intention of having it prove a warning to our boys or not; I only know that it fired this boy's imagination with a desire to be a Jesse James himself. He stole a horse, and I found him in jail; and he confessed to me it was a very hard matter indeed for him to get Jesse James out of his

mind and choose the straight and narrow path instead of the broad way that leads to destruction. Yes, after I had patiently and kindly talked the whole matter over with him, from beginning to end, and when he assented to reason and common sense, yet there was a longing for unlawful adventure that he could hardly root out of his mind and his *imagination*. Some of my readers may think this very strange; but I am inclined to think there are others (perhaps a large portion) who will, in their own hearts, recognize that that boy was not, after all, so very much worse than some older people.

We all know more or less about the imagination, and how much it has to do with our acts in life. I was almost startled to hear Mr. Comstock quote text after text from God's holy word, indicating how much the imagination has to do with these lives we are living. Let us look at one of the chosen texts. For instance, away back more than 5000 years ago, "every imagination of the thoughts of man's heart was only evil, and evil continually." Again, in that same book of Genesis, two chapters further on, we read: "For the imagination of man's heart is evil from his youth." Let us now go on to Deuteronomy, 31:21: "For I know their imagination which they go about, even now, before I have brought them into the land which I swear." Again, I. Chronicles, 28:9: "For the Lord searcheth all hearts, and understandeth all the *imaginings* of the thoughts." Again, in the next chapter, 18th verse, Solomon says in his prayer: "O Lord God of Abraham, Isaac, and of Israel, our fathers, keep this for ever in the *imagination* of the thoughts of the heart of thy people, and prepare their heart unto thee." In the latter you will notice the imagination may be a power for good instead of an element for evil. Again, Proverbs 6:18: "A heart that deviseth wicked *imaginings*; feet that be swift in running to mischief." Again, Jeremiah 3:17: "Neither shall they walk any more after the imagination of their evil heart." Again, Jeremiah 7:24: "They walked in the *imagination* of their evil heart, and went backward and not forward." Again, Jeremiah 18:12: "We will walk after our own devices, and we will every one do the *imagination* of his evil heart." The prophet had been pleading with them in regard to their wicked ways, and he tells how they reply. Perhaps they replied by actions rather than by words. They say, "We will walk after our own devices, and we will every one do the *imagination* of his evil heart." Surely Anthony Comstock has abundant reason, and reason coming from Bible quotations, to support him in his position, that the sin of mankind has its root in the imagination. He said it was often stated that intoxicating liquors are the crowning sin of the present day; but while he was fully aware of all the devastation and ruin that come from intemperance, it was his honest opinion that impurity in thought, and the sin of holding fast to evil *imaginings*, is a greater sin than all the intoxicants together that curse our land.* His talk took a wonderful hold upon me, because, perhaps, I have been more than usually imaginative all my life. When I was a child I would sit still and laugh at my day dreams, or build air-castles, as it might be termed. I have been laughed at because I myself laughed at my fancies—that is, I often laughed aloud at some occurrence that was *purely* imaginary. Now, that is not so sad a thing as it is to get into a fashion of allowing your *peace of mind* to be disturbed by simple fancy. It is not a week

*The *imagination* of an intemperate man is often more dangerous than any *outside* influences.

since I found myself getting into a troubled state of mind because of something that I *imagined* might be. I put it away again and again. I went to work at something that would take my thoughts to another subject. This answered for a while, but back it came again. I prayed that God would deliver me from the hideous thing; but it required constant prayer until the time came when I could ascertain whether my fancies were real, or whether it was *only fancy*. The event proved that it was *only fancy*. In this case I had been borrowing trouble—borrowing indeed. Mr. Comstock told us that, when vile pictures have once been placed in this little picture-gallery of the soul, it is not always an easy matter to get the picture down and put some other one in its place. The old one has a fashion of showing *through*; and if you look intently where it used to hang, the lineaments of the old picture have a fashion of coming out stronger and stronger, like developing a photograph. You can almost *resurrect* an old and dead picture if you look where it used to be, and *long* for its presence again. Nowadays we have a way of making pictures by simply pressing a button. Evil imaginations are ahead of the Kodak, and you do not have to “press the button” at all. You simply *think* the evil thought, and there is the picture, more vivid and real—yes, and a thousand times more pernicious—than the real thing itself. I am not quoting Comstock just now. I am thinking of some of my own experiences. Imagination not only makes new pictures, but clothes vice so as to make it look like virtue. Imagination, with Satan in the background, will make you think your worst enemy on earth is your best friend. Imagination, with Satan out of sight in the background, will take a very commonplace person, and he will make that person look to your distorted vision like a seraph. Your *imagination*, if not held by the reins of reason, may induce you to bow down in the dust, and *worship* a piece of humanity not only commonplace, but vile and deceitful. If you have not had any experience in this line you *may* have before you die; and remember your old friend A. I. Root warned you. You need not delude yourself by saying you are too *old*, and have too many gray hairs for any such youthful folly. Satan laughs at gray hairs, and well he may; for some of his veriest *dupes* are found among those who are surely “*old enough*” to know better.

It is a little strange that men right here in America, in this nineteenth century, should lend themselves to Satan's work along in the line that Anthony Comstock has been fighting. This form of iniquity seems to start up here and there, and often where least expected. No matter how many are caught and sent to the penitentiary for disseminating vile literature, the thing has to be *continually* fought. Mr. Comstock has caused the arrest of nearly 2000 different persons within the 22 years that he has been at work. The mails are now so carefully guarded that it is dangerous business for these people to undertake to mail any of their hellish trash. I have been wondering whether it is possible that the *only* incentive to this traffic should be the *money* they get from it. Years ago, pernicious books would get into the schools. They would be passed about from one boy to another, and sometimes the vile thing would go almost through the school before it was stopped. Fathers and mothers used to be (at least some of them) stupid and indifferent about these things, compared to what they are now. Not long ago a man in one of the streets of New York was handing some packages to children as they were on their way home from school. A little girl received one. She read on

the outside, “Don't open this until you are off alone by yourself.” But the Devil made a blunder that time. Keen as he usually is, he got hold of a little girl who had the wrong kind of bringing up for his schemes. She marched straight home to her mother and held up the package. “Mamma, a man gave this to me. What does it mean?” I can imagine how mamma's eyes blazed as she opened the packet enough to divine its meaning. She replied, “Go with me this minute and help me to hunt up that man. He is a thief and a robber. He is worse than a mad dog let loose.” The child had faith in her mother, and the two started out. They found him still at his work. A policeman arrested him, Anthony Comstock was sent for, and the man is now serving out a sentence of *eight years* in the penitentiary. May God be praised that we have little girls who will go straight to their mothers with every thing of this sort. May he be praised again for such mothers, and for Anthony Comstock. A few years ago it was customary for agents of this kind to collect the names and addresses of schoolchildren; but the mails are now handled with such keen scrutiny that they have about given it up. They confine their operations mostly to such boys as they can find in the saloons. Intemperance and impurity go hand in hand, arm in arm; and let me say to the few good people who defend tobacco, that Anthony Comstock gained the fierce hatred of almost the entire cigar-trade. Do you know why? It was because he meddled with their business. These dens of infamy had found out that a vile picture could be put into a box of cigars, and neither the man who smoked the cigars nor the man who sold them would “squeal.” Why, go into any place where they sell cigars, and look at the pictures on the boxes. Do you want your boy to see such pictures? Do you want that little picture-gallery within his pure unsullied heart embellished with such things as these? Do you want his undeveloped childish imagination to begin *feeding* on things of this sort? Most fathers look back and remember at least times in their lives when they felt the baneful, blasting, withering effects of evil imaginations in this direction.*

Last, but not least, every Christian knows that this sort of sin is the worst foe to spirituality. A boy may be on the eve of giving his heart to Christ—nay, he may be studying for the ministry; and one single vile picture, or one indecent book, may kill out all thoughts of nobler and higher things. Satan is saying, even to-day, “All these things will I give thee if thou wilt fall down and worship me.” And, O dear friends! the saddest part of it all is, that many of our promising young men have accepted the bargain. They have, in consideration of what Satan has pictured to their imagination, given up all, and sold their souls to *him*. Yes, *sold* is the word—sold, body and soul; sold to everlasting death and ruin.

There is a hopeful thing about all this, however. The affairs of our State and nation are surely getting, at least to a certain extent, into

*Seed of this sort, sown in the heart at a certain age, takes root and grows with amazing rapidity. “Whatsoever a man soweth, that shall he also reap.” And this is *terribly* true of vile things that once get a hold of the youthful imagination. The crop comes, too, oftentimes, in an incredibly short space of time. Do you know where the reaping is done? In the county infirmary and in the insane-asylum. Go visit institutions of that kind; make inquiries in regard to the inmates; and when you get down to the facts you will find that a great majority of the occupants have come there through feeding the *imagination*, at an early age, on this very trash that Anthony Comstock is waging such determined warfare against.

the hands of the *mothers*. The mothers do not use tobacco; and may God be praised for this one comforting thought; and still more comforting—yes, it ought to be a thousand times more comforting, when we reflect that the *mothers* are not and *never can be* in favor of vile pictures and impurity. Every mother knows—in fact, it is stamped on every fiber of her being, that not only the safety of her boys and girls, the safety of the home,* the safety of humanity, the safety of this whole world, of intellect and righteousness, depends almost entirely upon purity in thought and life. Impurity and sensuality are the enemies of the home; they are the enemies of every thing pure and holy. Sometimes it has seemed to me as if there were only one Anthony Comstock in our nation, and that, when he dies, Satan would take courage, prick up his ears, and open up business again. God forbid! Every *father* should be an Anthony Comstock on the home guard. Every mother is already, if she only knew it. May be she needs waking up a little, and needs to be reminded that she as a mother is one of the officers. Yes, God has chosen her, and God calls upon her to make herself heard and known. May God help us; and may he help *me* to keep constantly before my eyes and before my imagination that grand little text that should find a prominent place in that little picture-gallery (the imagination) in these hearts of ours. Give it lots of room, and fix your eyes upon it often:

BLESSED ARE THE PURE IN HEART, FOR
THEY SHALL SEE GOD.



MULCHING AND MANURING STRAWBERRIES AT ONE AND THE SAME TIME.

We have about an acre of strawberries that are growing their third crop. We ordinarily let them bear only two years; but we kept working and manuring this patch in order to get plants, and this season we proposed to plow it under just as soon as the last berries were picked. Only part of it was mulched during the winter. We do but little mulching, because we want to work the ground in the spring so as to get nice plants for shipping. But just before

* A real true home can not well exist without a father and a mother; and impurity would set to work the very first thing to break up a home. A few days ago I took a hasty glance into a popular magazine. Mind, I say "popular;" but in all its long years of record it has never been prominent for its godliness. This magazine was speaking about unhappy marriages, and divorces, and a suggestion was casually thrown out that the home should consist of only the mother and the children, and that grown-up men should be at liberty to go where they please, and do as they please, providing they, *collectively*, support the women and children. In that case we should all of us have mothers but not any fathers. Oh, yes! we should have fathers, after a fashion; but although the boys and girls might know their mothers, each and all, quite well, they might or might not know which father was *their* father. The suggestion has haunted me like a nightmare. It certainly came from the prince of darkness, and from the lowest depths of the bottomless pit. The man who has not manliness enough about him to stand up before the world and acknowledge himself the *father* of his own children (each and every one), and the lawful husband of the *mother* of those children, had better spend his life in the penitentiary, for he does not deserve any better place.

picking-time we found we should *have* to mulch with something. Muddy and gritty strawberries are behind the times. Every strawberry-grower ought to be ashamed of offering dirty berries. On the fairground, near our place, there are some horse-stables where they make a great quantity of loose straw manure. It is so much straw and so little manure that I pay only from 50 to 75 cts. a load, and this for a load that we bring on our hay-rack. Well, I thought I would use this for mulching to keep the berries off the ground. You know how the frost cut them off, and just about spoiled the Jessies with some others, and then the hot drouth diminished and dried up what few berries were left. Well, we had pretty much given up getting any strawberries worth mentioning; but a pretty good rain came on the evening of the 19th, and lasted during the forenoon of the next day; and almost as soon as the rain was over I was happily surprised to see not only the bright new foliage, but stems of berries sticking up here and there that had just about doubled in size during the rain; that is, they were twice the size they would have been had it not been for the rain and manure. Well, now, that acre of strawberries is bearing considerable nice fruit, and making plants at a tremendous rate, under the influence of the straw mulching and the manure. One objection to stable-manure has been, you know, weed seeds; but if we are going to plow the patch under so soon, who cares for the weeds? The more they come, the better. I propose now to let the whole thing be until both weeds and plants get at their best, then we will take out the best of the plants, with a lump of dirt adhering, and make a new plantation right beside the old one. By this time the weeds will be up so as to be worth something to plow under; and thus we shall have a splendid piece of ground for buckwheat and crimson clover, as mentioned in the last issue, or for any other late crop.

A VISIT AMONG THE STRAWBERRY-GROWERS.

Saturday afternoon, June 15, I started out to see what my neighbors were doing in the height of the berry season. About ten miles northeast of Medina I found the Lawnsdale fruit-farm, on ground high enough so they were affected by the frost but little compared with our own locality. Friend Williams, the proprietor, raises strawberries, raspberries, blackberries, gooseberries, and currants, with potatoes for filling in and to make a sort of rotation of crops. He has about 30 acres of land, and it was really a refreshing sight to behold such a berry-farm right in the midst of a locality where every thing else is devoted to regular farming and stock-raising on a heavy clay soil.

On a northern slope near the road I found about an acre of strawberries that was worthy of a picture; but I did not have the Kodak along that time. The berry-plants are in rows, apparently about four feet apart, like our own. They were so well mulched with straw in the fall that not a berry could find a grain of dirt or soil to rest on. Friend W. hit it exactly in being slow to remove the mulching. He kept the plants back all he could without injury, and then gradually made openings in the straw to let the plants come up through when they were ready to start. By the way, I have never found anybody yet who would remove the mulching with sufficient care to suit me. They would go and claw the straw all away and throw it in the paths. Now, the straw should not be moved a particle. Let the berries go up through it, leaving the straw where it is; then you will have a perfect mat to keep down weeds and to keep the fruit out of the dirt. It also

serves to keep the berries back so as to avoid a late frost. Only two kinds were on this patch—Crescent and Downing—three rows of one and then three rows of the other, and so on. Varieties that succeed splendidly here in Medina do not prove to be the best there, just ten miles away, and therefore I feel sure it behooves every strawberry-grower to test, say, one row of each of the best kinds prominently before the public; then make a selection of what suits your locality, and stick to your selection. I do not believe any grower wants very many kinds for fruit alone in his locality. It may pay him to have a few Michel's Early, and, say, a few late ones like the Gandy; or if other extra late ones or extra early ones do better, take them instead. Friend W. does almost all the work on his 30 acres with the help of his wife and two children. It keeps them pretty busy, especially during the berry time; but, if I am right, the *happy* families are the *busy* families. I shall long remember the hour I spent in and around that pleasant little home. And, oh! by the way, I picked up

A HORSE-STORY

at that home that I am sure will interest you. Friend W. is about two miles from the town of Brunswick. His girl attends school there, and comes home nights. Now, this will do very well in good weather; but how about bad weather? I will tell you. They have a sagacious, gentle horse that takes the young lady to school every morning, and comes home *himself*. About the time for school to be out he goes back for his young mistress. As there is not any driver he sometimes takes things easy in going the two miles, and does not reach his destination till after school is out. At such times the young lady comes to meet him on foot along the sidewalks that go a piece out of town. He has learned that, when he meets her, he must turn around and go back again; so he watches all the little girls of about her size as they come out of the school and come down his way, turning his head and pricking up his ears while he scrutinizes each miss to see whether she is the one he "belongs to." Sometimes he seems somewhat undecided, and stops in the road to take a better look. When he is satisfied the one in question is not his "best girl" then he goes on for the next, and so on. This brings in an interesting point just here: How far can a horse see, and see plainly enough to distinguish one person from another? I suggested that meddlesome people might tie the horse up, thinking it was astray; and they very soon found that a card would have to be hung on to the harness, to the effect, "You let me alone, I know where I am going, and I am all O. K." After this, especially as the people round about have "caught on," he made his daily trips without hindrance.

THE BARBER BERRY-FARM.

This is about two miles directly north of Brunswick. It is near what they call Stone Hill. As I pushed my wheel up the neat gravelled path under the trees, a pleasant-faced woman met me with smiles, telling me her husband was just starting off, but that I could stop him if it were attended to at once. Friend Barber has been in the fruit-business from childhood up, and he has perhaps 50 acres on a gravelly stony hill, devoted entirely to fruits. This hill is a very high one. The slope toward the west must be down a hundred feet or more; and the consequence is, he has his trees and berries loaded with fruit—grapes, plums, cherries, peaches, etc. It was a real pleasure to me to find I was able to name not only all his strawberries, but his raspberries, currants, and some of the blackberries. After experimenting

some he has decided to plant the Victoria currant almost entirely, and nothing else. For raspberries he has the Cuthbert for red, and Gregg for black; some Shaffer's Colossal, and some Marlboro for early. He not only uses the hill, but, like myself, he has a creek-bottom strawberry-patch which is nice to start plants; and when the frost holds off it gives quite a lot of fruit. Various springs in the hillside would probably fill a reservoir sufficient to irrigate his lower grounds, and he is just now planning to have this done.

REDUCING THE EXPENSE OF PICKING.

Friend Williams gave a valuable suggestion right here. Both he and Mr. Barber had their berries picked at the rate of 5 cts. for a four-quart basket. Now, it costs more than this to get our berries picked; but we pick them every other day. Friend W., by using Crescents and Cumberlands, can wait three or even four days, as the berries are firm enough to stand handling, even if some of them are a little overripe. You see, the pickers can work cheaper where the berries are very plentiful. Heavy mulching, with his peculiar soil, perhaps helps to raise berries that will stand this length of time between the pickings.

Before I was half through looking at and sampling the Haverlands, Cumberlands, Jessies, etc., the sun was setting, and I was ten miles from home Saturday night. Oh what a nice thing is a wheel! We were back in the fields about half a mile from the road, and the half-mile was up a long steep hill. I suggested that I could cross the fields and strike the road in the valley, as that route would be much less hilly for me for my trip home. Now comes in the advantage of a light wheel. I could hang it over my shoulder, climb fences, or get through bushes, without much hindrance. It made me puff some until I struck the highway, and then what a delight it was to spin along a road almost level! To really enjoy wheeling to its fullest extent you should walk occasionally until you are tired of walking; then the wheel comes in and gives you that delicious rest. A boy in his teens came down from a pretty house by the way, and mounted *his* wheel. He did not see me; but I thought I would, just for the fun of it, run past him and show him what an 18-lb. Rambler could do. But I did not show him the Rambler at all. Do you know why? Why, he kept ahead of me in spite of any thing I could do, and in a little time he was away off in the distance, clear out of sight, even if his wheel did weigh more than twice as much as mine did. Never mind. I always feel glad when somebody gets ahead of me, even if I had planned otherwise—at least, I hope I do; and I am certainly happy in seeing the boys and girls put distance to naught, even outdistancing myself in it. There seems to be something especially fascinating about wheeling during twilight; and after visiting California and Florida, and experiencing almost sudden darkness as the sun goes down, I enjoy our Ohio twilights more than I ever did before.

My road was a little back from the great highway of travel; but there seemed to be an unusual number of pretty homes. At different times I had visited some of the places, talked with some of the young farmers about tiling their low lands, and utilizing the springs for irrigation, etc., so that the improvements that met my view added largely to my enjoyment. As I neared home I passed through the locality of the Abbeyville Sunday-school that our older readers will remember. Many of my old pupils were now fathers and mothers, having pleasant little homes of their own; and oftentimes the children would glance up at me smilingly,

bringing back pleasant recollections by the resemblance they bore to their parents. As I turned into our own dooryard there was still sufficient light from the bright sky off in the northeast; and I might almost say that I rode ten miles after sundown, and reached home before dark—that is, before it was *real* dark.

With the years of experience I have had in wheeling, I believe I can give some good advice. While this "second wind" is a wonderful and most priceless gift, like other blessings we should try to *use* it and not *abuse* it. In my trip through Missouri, especially on the ride I finished that Saturday night, I overtasked myself. In fact, I am not sure I am *completely* over it even now. In a recent number of the *L. A. W. Bulletin*, a writer made the remark that, whenever a wheelman finds he is unable to sleep nights, he has been overdoing, and I believe this is a pretty good rule. If you ride moderately the use of the wheel is conducive to sleep. If, however, under the influence of this new and may be heretofore unrecognized source of strength, the second wind, you keep on until the wheel seems almost as if it went of itself without any effort of your own, you may find that, when you try to go to sleep, sleep will not come. Another thing, very little strength is required on good roads, and roads that are not very much up hill; but climbing hills, especially if they are very long and steep, is hard on the muscular energy. You get along much easier, and enjoy the trip much more, if you get off and walk when the hill is so steep that it requires much effort, and accustom yourself gradually to long trips. When I commenced this spring, five or ten miles at first seemed to be enough. After you have ridden ten miles a day, however, for three or four days, you can make twice that or more, without much fatigue. Keep increasing the distance carefully and cautiously, and look out for excessive fatigue when undertaking to ride when the roads are in bad order. Be careful, however, about undertaking more than you can manage and do it easily. During extremely hot weather it is better to ride early in the morning, or during the twilight, as I have described. If you are not an expert in handling wheels, let some experienced person examine your wheel occasionally, and see that it is in nice order.

LATHYRUS SILVESTRIS IN BLOSSOM.

In passing a mass of plants this morning, June 21st, after a beautiful rain, I stopped and said, "Well, how in the world did sweet peas get among our lathyrus?" Looking a little closer I discovered that the beautifully colored diminutive sweet-pea blossoms were actually growing on the lathyrus. Why, a field of the plants would be literally gorgeous. Who was it that said it would not bear seed in this country? Well, we have not got the seed yet; but we have the blossoms. Stock seem to eat it about as readily as any of the clovers; and with its tremendous roots I can readily believe it will stand when once it gets root. And notwithstanding this, I should think it would not be a very big job to plow it under after it has been cut or pastured down pretty well.

BUGS ON SQUASHES, CUCUMBERS, MELONS, ETC.

Will you please give a remedy or preventive for the bugs that destroy cucumber, melon, squash, and other plants? If you know of any thing that will destroy these pests, or prevent their ravages, please let us have the benefit of that knowledge at once. J. F. WELTON.

Amboy, Ind., June 24.

Friend W., our mode of warfare is as follows: The minute the plants are up they are watched

morning and evening, and sometimes between times. Just as soon as a bug is found, the vines are treated to tobacco dust. If they still persist, tobacco dust is piled clear over the plants. Sometimes the plants grow up through the tobacco dust sprinkled over the hills. This usually suffices. However, when the bugs come in great numbers, and are very ravenous, or when the black squash-bug comes in great numbers, we try pyrethrum along with the tobacco dust. If they still are doing injury to the plants, then we get the wire-cloth screens, shown in our seed catalog, and fence them out. There are times when the latter seems to be the only real sure remedy; and even these must sometimes be watched to be sure that bugs do not come out of the soil under the wire-cloth screens. Many substitutes are recommended for these latter, such as boxes covered with cotton cloth or mosquito-netting. Striped bugs, however, often manage to get through the netting. If you fight them determinedly, both morning and evening, and show them you mean business, they will very soon give it up. This year we have not had a bug on cucumbers, melons, or squashes; if, however, you have so many things to look after, and they are neglected until they get under big headway, *you* may be the vanquished one instead of the bugs. Slugshot, and other preparations of Paris green, have been recommended; but they have never been as satisfactory with us.

STOWELL'S EVERGREEN SWEET CORN; IMPORTANCE OF GETTING THE SEED OF THE GENUINE.

My dear Friend:—I noticed in GLEANINGS last year, and also in this, what you say about Stowell's Evergreen corn. Your attention seems to have been directed to it last year for the first. I have had it from the time Mr. Stowell first put it on the market—twenty years and more ago. I consider the *genuine* the best sugar corn grown. I lost my seed several years ago, and have been trying in vain to get the *true* Stowell's Evergreen. There is a great deal sold for Evergreen that is not true.

This spring I obtained what I believe to be genuine. I have planted it, and it comes up nicely. I intend making my last planting about the close of this week or beginning of next, which will give table corn into the middle of October, unless a frost cuts it off. I generally have it that long when I have the genuine, as it remains fit for table use a long time after it begins to ripen. Knowing how hard it is to get the genuine, I send you some. The party I got it from told me they got it years ago from Mr. Stowell. Try it; and if it is genuine you will say you never ate better corn.

REV. JNO. L. JANEWAY.

Pawling, Pa., June 15.

Thank you, friend J., for the trouble you have taken to start me with some of the best seed. I shall plant it at once, and I hope we may be able to get mature seed from it.

CURRENTS—THE STEM BORER.

Now is the time to look over the bushes for the stem-borer. We have just finished an acre, and have found from one to fifteen stems cut off in one hill. A moth cuts them off and deposits an egg in the center of the stem, which, if allowed to hatch, will work its way downward through the heart, destroying the branch. We use a sharp knife and cut off about an inch; but in a month from now the worms may have worked down two or three inches. The moth cuts the new growth square off every time, so we cut on a slant. If we go over again, our work can be told at a glance from the work of

the moth. I consider this of as much importance as destroying the currant-worm.

Lodi, O.

W. R. GRANNIS.

ELECTROPOISE.

ROBBING SICK PEOPLE.

Mr. A. I. Root:—We have been victimized by the Electropoise fraud, and would like your advice. We had bought the concern about three months before your first expose of the same appeared in GLEANINGS.

We purchased the thing for a sister who had been troubled with heart disease for a number of years. In the fall of 1893 she was suddenly taken down with grip, and her heart trouble at once became very alarming. She was treated by our family physician all winter, and became some better, but still very weak, when our good doctor was taken sick and died. During the winter there was a kind gentleman here to see us, who had bought an Electropoise for his wife, and said she had been greatly benefited by it, and that he had cured himself of heart trouble, brought on by the use of tobacco, in a short time with it.

When he went home he sent us a lot of circulars, and I am sure he meant well by it, and was as innocent of fraud in the matter as you or I. I can truthfully say I had no confidence in it from the first; but sister read some of the pamphlets, then asked me to read, and we were "taken in" by the indorsement of clergymen, statesmen, and other people of prominence. Our doctor had told us if our sister lived until warm weather came she would get better, which she also did, although she gained strength very slowly. Well, along in May some time, she commenced treating with the Electropoise, and her strength kept slowly increasing. She was to report to the company after each course of treatment, which she faithfully did, and they wrote back to her telling her she was doing wonderful things, and advising her how to proceed. She followed their advice *strictly*, and on the 26th of August she dropped dead, right in the midst of a course of treatment. I can only say we were stunned, for she was the light of the whole household.

Aurora, W. V., May 27.

LEAH BEACHY.

Of course, no one could claim Electropoise did any harm in the above case, except that these people intrusted a dangerous case to the claims of a fraudulent thing. Had the case been turned over to a competent physician, the girl might have been well now; but no one can tell positively. I suggested to these parties that they state the case to the Electropoise people, and ask them to take the thing back and refund at least some part of their money. An interesting question comes in here. After the patient is dead, and the family have no further use for the instrument, how much would it be worth to the ones who sold it? It cost the purchaser \$25.00; but I am inclined to think the Electropoise people would hardly want to pay more than 25 cents. Rather than commit themselves, very likely they would refuse to take it back at any price. If they want to keep up the fraud, however, it might be a sharp thing for them to pay, say, \$15 or \$20 for it back again. Another point comes in incidentally. A man who had brought on heart trouble by the use of tobacco declared he was cured by Electropoise. Did he keep on using tobacco? If so, then here is a marvelous thing indeed. The instrument has such wonderful virtues as to cure a man from the consequences of a bad habit, and yet permit him to keep on. When we hear what they offer for the thing back again we will let our readers know.

The *Ohio Farmer* has just come to our aid; for in their last issue we find in their Medical Department the following:

While Electropoise, like every thing for cure of illnesses, has wonderful testimonials, we have failed to learn of any case of benefit from its use. True, chance of observation has not been extensive,

but the absence of report of some of those remarkable cures from the sick with whom we mingle is significant. To judge from examination of the instrument, would certainly condemn it. Its name indicates electrical action, but it has not the first appointment for this result. It claims to cure typhoid fever in from four to twelve hours—suppose they mean in the beginning. The price quoted is \$25 for a metallic device about the size of one's thumb, to be worn on the body. It is being much advertised and pushed, and many invalid readers of this paper will be tempted to subscribe for an instrument, as drowning men catch at straws.

It seems from the above that our regular practicing physicians do not meet with the wonderful cures certified by the testimonials.



Anybody who is thinking of building a greenhouse, even a very small affair, will probably find the June number of the *Market Garden* worth the subscription price of the paper for a whole year. This is a special number on greenhouse construction. You had better get one for a sample, any way, if you have not seen the *Market Garden*. Address the Market Garden Co., Minneapolis, Minn.

JAPANESE BUCKWHEAT.

We are having a good trade in Japanese buckwheat as usual this season of the year. So far we have not been obliged to advance the price as we have had to do for several years back. We still have a good stock in reserve, and our price for the present is \$1.20 per bushel; 2 bushels, \$2.20; 5 bushels or over, \$1.00 per bushel; bags included.

BUSHEL BOXES.

The season for using bushel boxes and crates is near at hand, and we would remind our customers that we are still prepared to furnish them at the old price. We have sold three thousand to one party in Pennsylvania, and another thousand to a New York customer, besides other orders, large and small. See advertising columns for further particulars and prices.

CATALOG OF HONEY LABELS AND RUBBER STAMPS.

For a time our supply of label catalogs was exhausted. We now have the new edition ready to mail to all who are interested and apply for one. It contains, besides the old favorites in honey-labels, several new and handsome designs. If you have a choice lot of honey, make it as attractive as you can by neat packages nicely labeled with your name and address. Then when the consumer wants more he will ask for your honey.

NEW 1895 EDITION OF A B C OF BEE CULTURE.

At last we are able to announce the new edition of the A B C of Bee Culture completed. There have doubtless been more additions and changes in this than in any former revision. Many new illustrations have been added. It will be furnished only in cloth binding. Price same as before, \$1.25 postpaid; or clubbed with GLEANINGS for one year \$2.00 for both, postpaid. To all those who have had a former edition at full price we furnish one of the new edition at \$1.00 postpaid, provided you say in your order that you have had one before.

FURTHER DECLINE IN BEESWAX.

During the last ten days there has been a decline of at least 2 cents per pound in the price of wax in New York market. The demand has slackened somewhat, and wax is more freely offered. We quote for the present 23c cash, 26c trade, for average wax delivered here. If you ship wax to us be sure to put your name on the package, and write us at same time; and please remember that we do not agree to pay more for it than we are paying when the wax reaches us. That is, if we should decide on a further decline July 15th, and you should start some wax to us on the 14th, which does not get here till the 18th, we do not pay more than the price

quoted the 15th. When wax was advancing in price, and some parties shipped when we were paying 28c., if it reached us when we were paying 30c the shipper got the benefit of the rise. It is a poor rule that doesn't work both ways. We mention this that none may be disappointed if they don't get as much as they expected, now that the market is declining. We have a good deal of wax on hand which cost us more than we can sell for now.

WANTED—SWEET-CLOVER SEED.

Tell us how much you have, and what you will take for it. At the price that is offered for it now it will pay to cut what goes to seed along the roadside, and it will very soon be making seed in most localities. It seems to me that some of the friends away out in Utah, where it grows all over the great sandy desert, might gather and ship us a carload. If you can not make a carload of seed, then give us a carload of sweet-clover honey, with some seed put in to fill up. There is no better honey in the world than that from sweet clover, and there is no plant that I have ever found that would grow with such thrift and vigor on the poorest, hardest, unfertilized, and uncultivated roadside. Besides all that, it is a valuable forage-plant. We cut it for our horses, and they eat it with more avidity now, since they have learned how, than any thing else in the line of green feed or cured hay. Some people call it a weed; but it is an exceedingly valuable weed. Let your stock get used to it and they will eat up every bit of it, even the hard and dry seed stalks. I believe it succeeds rather better on hard dry clay, or gravelly clay, than on sandy soil, for I never saw any of it in Florida—that is, to amount to any thing.

SQUASHES, RASPBERRIES, STRAWBERRIES, ETC.

June 28.—Well, the striped bugs have found the Hubbard squashes after all; but it was not until the vines had got out a yard or more; and then the bugs centered on the tender tips of the vine. The vines are too old to be covered; and, running so fast, it was hardly practicable to cover them with tobacco dust; so we just brushed the insects off the tender shoots and stamped them in the dirt. They have got now so they will fly as soon as anybody comes in sight. We got a small boy to fight them to the bitter end.

Our Gault raspberries from the first wood are so gnarly and imperfect as to be of no account. This was doubtless the result of the frost. The late crop, without question, will be all right.

We had thought once of discarding the Parker Earle strawberry; but under the influence of the recent rains, after all the other strawberries are gone the P. E. is doing nobly. We are going to hang to it for a late berry. We shall have strawberries sufficiently rooted so as to begin to fill orders—at least small orders—very soon after this reaches you.

THE CRAIG POTATOES.

They are now (June 29) doing finely; but the frost "sat down" very heavily on those we had started in the greenhouse. In fact, it hurt them rather worse than some that were up just a little way, that grew themselves outdoors. They are all, however, now beginning to show the distinct characteristics of the Craig as we knew it last year—strong, rank foliage, in spite of drouth or bugs; and we are just now mulching the space between the rows and around the hills with coarse stable manure—that is, the most advanced ones. This is the same treatment given the ten hills last season, you may remember. The manure is put on after the last cultivating, and just before the tops get so large as to be in the way of the manure.

DOCTORING WITH MEDICINE; A VALUABLE MEDICINE THAT I CAN RECOMMEND.

We have a liniment in our home that we have used for ten years or more that will cure or alleviate almost instantly a good many kinds of pain, such as toothache, earache, sore throat, rheumatism, neuralgia, bowel complaints, etc. This liniment, which we have used so long and like so well, is made by Dr. W. Wayland Wilson, of Billerica, Mass.

During a great part of my life I have been troubled with a chronic sore throat, that sometimes has a tendency toward quinsy. For many years I supposed there was nothing to do but grin and bear it when I felt it coming on. This is especially trying when I am obliged to talk, for talking greatly aggravates it. I have sometimes said I would give a

pile of money to anybody who would get me through this stage of a cold without that disagreeable hoarseness and pain in my throat. Well, "*Physianthropic Solution*" will usually give me relief in just about a minute, and it really seems as if the sore throat were driven away after using the remedy, say once in 15 minutes for an hour or two. When diluted with water, with a little sugar added, I find it rather pleasant to take. The rest of the family laugh at the idea of my liking medicine; notwithstanding, there was quite a complaint all around the neighborhood when our last bottle of "*Physianthropic*" was found to be nearly empty a few days ago. Why, the last spoonfuls were divided up like something exceedingly precious, and passed all around the neighborhood. I do not know whether Dr. Wilson will consider this a puff for his medicine or not; but if he would only sell it for 25 cts. a bottle, instead of 50 cts., I should feel a good deal more free to recommend that a bottle be placed in every household. Yet when one considers that a single dose will frequently save calling a physician, it can not be called an expensive remedy. He will, no doubt, send you a printed circular, telling all about it, with great pleasure. He used to be a bee-keeper, or had something to do with bee culture, years ago.

Queens

now ready by return mail, reared in full colonies, from the best honey-gathering strains in America, at the following very low prices:

Tested,	- - - each,	\$1.50
"	half-doz.,	8.00
Warranted Purely-mated,		.75
"	half-doz.,	4.25
"	per doz.,	8.00

If you want queens for business, get my old reliable strain.

40-page descriptive catalog free.

W. W. CARY,
Colrain, Mass.

In writing advertisers mention this paper.

Crimson Clover Seed!

Having more than I shall sow, I offer it for sale. It was grown on hard land; is acclimated fully. Clean, good seed, and will grow. 2 bush., \$7.00; 1 bush., \$3.75; ½ bush., \$2.00; ¼ bush., \$1.25. No charge for bags.

J. COLBY SMITH,
Willow Grove, Del.

Please mention this paper.

Black and Hybrid Queens For Sale.

I have 1 dozen black and hybrid queens ready for delivery at 30c each. JOE C. MOORE, Globe, N. C.

My order, No. 38,592, came to hand to-day in good shape. I found all the articles all right; also your favor of the 17th, with bill and 30 cts. in stamps, which I did not expect to be within 10 cts. of enough to pay freight on the box of goods, which was 40 cts., or 2c a pound from your place. I think that is very reasonable.

Cinnaminson, N. J., May 22.

LEWIS WILLIAMS.

ALL PRAISE THEM. ————— ITALIAN QUEENS

From the apiary of
W. H. Laws, Lavaca, Ark., can't

————— **BEAT** for **BEAUTY** and **BUSINESS.**

The leading bee-keepers of the U. S. are my customers. Your choice—either Golden or Leather-colored.

Prices Reduced.—Fine breeders always on hand, \$2 to \$3; untested, 75c; 3 for \$2; tested, \$1; 6 for \$5.

W. H. LAWS, Lavaca, Ark.

In responding to this advertisement mention GLEANINGS



**We can fill
Your Orders**

for Dovetailed Hives, Sections, Foundation, etc., by Return Mail. Have A. I. Root Co.'s goods at Their Prices. Will save you freight, and get goods to you in a few days. Catalog free.

JNO. NEBEL & SON, High Hill, Mo.

BEGINNERS.

Beginners should have a copy of the Amateur Bee-keeper, a 70-page book by Prof. J. W. Rouse. Price 25 cents; if sent by mail, 28c. The little book and the Progressive Bee-keeper (a live progressive 28-page monthly journal) one year, 65c. Address any first-class dealer, or

LEAHY MFG. CO., HIGGINSVILLE, MO.

In responding to this advertisement mention GLEANINGS

GOLDEN QUEENS Bred for business. Untested, 65 cents each; 6 for \$3.25. Tested, \$1.00 each. Fine breeders, \$2.00 each extra. Select straight 5-banded breeding-queens, \$4.00 each. To all new customers one **GOLDEN QUEEN** for 50 cts. Satisfaction and safe arrival guaranteed.

E. A. SEELEY, Bloomer, Ark.

P. O. Money Order office, Lavaca, Ark. 7-20

W. O. Victor, of Wharton, Tex., took

45,000 Lbs. of Honey in 1894.

He offers Italian Queens—good, old-style honey-queens—untested, first order, to any address, at 50c each. Also bees in any quantity; 450 colonies to draw from. **Root's goods constantly in stock.** Prices to suit the times. Buy near home, and save freight.

ITALIAN BEES Ready in May. Queens, \$1.00. Bees by the pound, \$1.00. One-frame nucleus with queen, \$2.00; two frames, \$2.50. Also Barred Plymouth Rock eggs for setting, \$1.00 per 15.

6-17c

MRS. A. A. SIMPSON, SWARTS, PA.

Look Here, Bee-keeper!

If you are in need of bee-supplies, write for catalog and price list. Every thing sold as cheap as the cheapest.

W. E. Smith.

Kenton, Hardin Co., O.

Queens, Either 3 or 5 Banded.

60c each; 6 for \$3.25. These low prices are to induce you to try them. Catalog free.

CHAS. H. THIES, Steeleville, Ill.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee Hives, Shipping-Crates, Frames, Foundation, Smokers, etc.

PAGE & LYON MFG. CO.,

8ftdb

New London, Wis.

Please mention GLEANINGS.

21-8db

Promptness is What Counts.

Honey-jars, Shipping-cases, and every thing that bee-keepers use. **Root's Goods at Root's Prices, and the Best Shipping-point in the Country.** Dealers in Honey and Beeswax. Catalog free.

WALTER S. POWDER,
162 Massachusetts Ave., Indianapolis, Ind.



HEADQUARTERS

For those large beautiful Golden Italians. One untested queen, 80c; 3 for \$2.00. One warranted queen, \$1.00; 3 for \$2.50. One tested, \$1.50; One select tested, \$2.00. Satisfaction guaranteed.

C. M. HICKS, Hicksville, Wash. Co., Md.

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians**, the result of 16 years' careful breeding.

Dr. H. B. Lung, Harrodsburg, Ky., says: "I have had the pleasure of seeing many fine strains of bees, yet I have never seen such industrious, energetic bees. I must express my admiration for your success as a bee propagator."

Warranted queens, 80c each; 3 for \$2.03. Select warranted queens, \$1.00 each. Safe arrival and satisfaction guaranteed.

Those who have never dealt with me, I refer to A. I. Root, who has purchased of me 808 queens. Circular free.

J. P. MOORE, Morgan, Pendleton Co., Ky.

In responding to this advertisement mention GLEANINGS

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,

12tfdb Sole Manufacturers,
Sprout Brook, Montgomery Co., N. Y.



World's Fair Medal

Awarded my **Foundation**. Send for **free samples**. Dealers, write for wholesale prices. Root's new **Polished Sections** and other goods at his prices. **Free Illustrated Price List** of every thing needed in the apiary.

Bell Branch, Mich.

M. H. Hunt.

Control Your Swarms, Requeen, Etc.



Send 25c for samples of West's Patent Spiral wire Queen-Cell Protectors, and Pat. Spiral Queen Hatching and Introducing Cage, also best Bee-Escape, with circular explaining. Twelve Cell-protectors, 60c; 100, \$3. 12 cages, \$1; 100, \$5, by mail. Circular free. Address **N. D. WEST, Middleburgh, Scho. Co., N. Y.**

Sold also by all the leading supply-dealers.

In responding to this advertisement mention GLEANINGS.

"The Market Garden."

A Monthly Journal

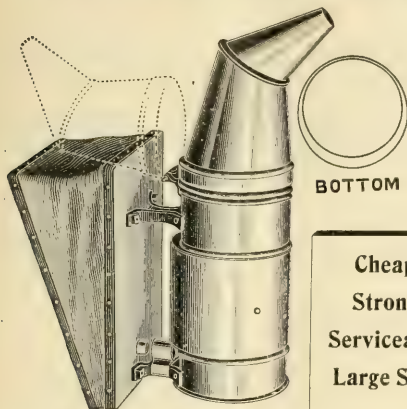
For Market-Gardeners and Truckers.

50 Cents a Year. Sample Copy FREE.

THE MARKET GARDEN CO.,
Minneapolis, Minn.

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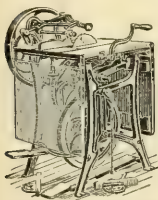
The New Corneil Smoker.



**Cheap,
Strong,
Serviceable,
Large Size.**

JUST THE THING for those who want a first-class smoker at a medium price. Size of cup, $3\frac{1}{2}$ inches; curved nozzle, hinged so as to swing back; legs of malleable iron, secured by bolts. The blast is the well-known Corneil principle. Weight of smoker, only 20 ounces. Price \$1.15, postpaid, or 85 cts. if sent by express or freight with other goods.

**THE A. I. ROOT COMPANY,
MEDINA, OHIO.**



ONE MAN WITH THE UNION COMBINATION SAW Can do the work of four men using hand tools, in Ripping, Cutting off, Mitering, Rabbing, Grooving, Gaining, Dadoing, Edging-up, Jointing Stuff, etc. Full Line of Foot and Hand Power Machinery. Sold on Trial. Catalog Free. 1-24ci
SENECA FALLS MFG. CO.,
44 Water St., Seneca Falls, N.Y.

In responding to this advertisement mention GLEANINGS.

Queens, Either 3 or 5 Banded.

60c each; 6 for \$3.25. These low prices are to induce you to try them. Catalog free.

CHAS. H. THIES, Steeleville, Ill.

Tested By mail, in July and August, 50 cents each.
Italian
Queens J. C. Wheeler, Plano, Ill.

In responding to this advertisement mention GLEANINGS.

Gray Carniolans and Golden Italians.

Our bees are *hardy, gentle, prolific*, and the best of honey-gatherers. One untested queen, 75c. six for \$4.00. All new customers can have one untested queen of either race for 50c. We do this to introduce our bees. We never saw foul brood or bee paralysis. Don't fail to try the Carniolans; they will surprise you. Descriptive price list free.

F. A. LOCKHART & CO., Lake George, N. Y.

BEE-KEEPERS' SUPPLIES FOR 1895.

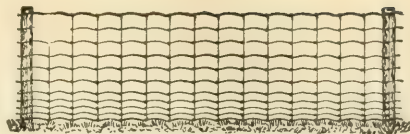
Such as Dovetailed Hives, Sections, Comb Foundation, Extractors, and every thing else used by a bee-keeper. All late improved goods. Immense stock. Goods sold at wholesale and retail. Write for our

DISCOUNTS FOR EARLY ORDERS.

Alsike clover and Japanese buckwheat furnished at lowest market price.

Address **JOSEPH NYSEWANDER, Des Moines, Iowa.**

In writing advertisers please mention this paper



FOUR OF A KIND.

A certain railway official wrote the officers in charge of fencing on four great Railroads, where "the Page" is in use, asking their "honest opinion" as to its value. He considered the answer so very favorable that he gave a large order for the Road he represented. The replies were confidential, but he stated that the strongest endorsement came from where "the Page" had been longest in use. If farmers took such precautions, those who furnish "cheap" wire fences would go out of business.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

In responding to this advertisement mention GLEANINGS.



That Tired Feeling

Caused by washing has been conquered by the Champion Washing-Machine. Can sit down to run it. Runs Lighter and washes Cleaner and Faster than any machine on the market. Will sell at wholesale rates where we have no agent. Write for prices.

**CHAMPION MFG. CO.,
Middletown, Pa.**

In responding to this advertisement mention GLEANINGS.

«MONEY-MAKERS»

Are a strain of business Italians that winter in the cold North, and are ready for business, with a bushel of bees, when the flowers bloom. They are gentle and industrious. Queens warranted purely in June. Each, \$1.00; six, \$5.00; doz., \$9.00. Safe arrival and satisfaction guaranteed. Never had any disease.

Address **E. F. QUIGLEY, UNIONVILLE, MO.**

3=Banded

TESTED ITALIAN Queens,
from my own imported queens, \$1.00 each.

Max Brauer, Beeville, Bee Co., Tex.

Italian Queens By Return Mail.



From best imported mothers, mated to drones of finest imported stock, from a different source, hence a direct cross. All queens warranted purely mated and to give satisfaction, at 75c each; 6 for \$4.00; select warranted, \$1.00. No disease. Safe delivery.

L. H. ROBEY, Worthington, W. Va.

In responding to this advertisement mention GLEANINGS.

HONEY COLUMN.

CITY MARKETS.

CHICAGO.—*Honey.*—Some lots of new comb honey are coming forward, and sell at 14@15. The demand is very light, and will be for the ensuing two months. Extracted, 5@7, with sales chiefly around 6. Beeswax, 28.
R. A. BURNETT & CO.,
July 8. 163 So. Water St., Chicago, Ill.

PHILADELPHIA.—*Honey.*—The honey market is about the same as last quotations. Trade has been somewhat quiet, with only a small demand since the 1st of July. We look for a rather dull market until fall. We quote new-crop extracted, 5½@6½, in bulk; comb, 11@14, according to quality. Beeswax, 25@27.
WM. A. SELSER,
July 9. No. 10 Vine St., Philadelphia, Pa.

SAN FRANCISCO.—*Honey.*—Honey is a trifle firmer, as the crop does not turn out to be as large as expected. I quote 4½@5½ for light amber and white respectively. Comb honey, 1-lb. frame, 8@10. Beeswax scarce, 27@28.
HENRY SCHACHT,
June 24. San Francisco, Cal.

CINCINNATI.—*Honey.*—There is a good demand for extracted honey at 4@7, with a small supply on the market. Demand is fair for comb honey at 12@14 for choice white. Beeswax is in good demand at 25@30 for good to choice yellow.
CHAS. F. MUTH & SON,
July 8. Cincinnati, O.

CLEVELAND.—*Honey.*—There is no demand whatever for honey, and no receipts reaching us at this season of the year. We are holding No. 1 white at 12@13; extracted, water-white, 8. Beeswax, 28.
WILLIAMS BROS.,
July 8. 80 & 82 Broadway, Cleveland, O.

DETROIT.—*Honey.*—No honey in market to quote; but best new comb honey would sell for 14c. Extracted, 6@7. Beeswax dull and lower—23@24.
M. H. HUNT,
July 8. Bell Branch, Mich.

KANSAS CITY.—*Honey.*—Old stock of honey well cleaned up; some new comb in market. We quote new No. 1 white 1-lb. comb, 14@15; No. 2, 12@13; No. 1 amber, 12@13; No. 2, 10@11. Extracted, white, 6½@7; amber, 5@6. Beeswax, 25.
C. C. CLEMONS & CO.,
July 9. Kansas City, Mo.

KANSAS CITY.—*Honey.*—We are receiving new comb and extracted. New white comb, 14; extracted, white, 6½@7; dark, 4½@5. Demand very light. Beeswax, 22.
HAMBLEN & BEARSS,
July 8. Kansas City, Mo.

BOSTON.—*Honey.*—There is practically nothing doing in the honey line just at present. Nominal prices, 13@14 for comb, and 5@6 for extracted.
E. E. BLAKE & CO.,
July 8. Boston, Mass.

BUFFALO.—*Honey.*—Very light receipts as yet, and light demand. Possibly a few shipments of white comb could be sold at 12@13, possibly a few sales at 14, and other grades correspondingly lower. We can only suggest that people who want to find out what our market is, should make a few trial shipments, which will show just what we can do for them.
BATTERSON & CO.,
July 8. Buffalo, N. Y.

DENVER.—*Honey.*—Our honey market is quiet, there being so much fruit on the market just now. New honey is just beginning to come in, and we can quote same in 1-lb. sections at 11½@12½. Extracted, No. 1 white, in 60-lb. cans (2 in a case), 6c.
R. K. & J. C. FRISBEE,
July 8. Denver, Col.

ST. LOUIS.—*Honey.*—The honey market at present is dull. White and alfalfa comb honey, fancy stock, 1-lb. sections, 11@12; good to choice, 9@10; strained and extracted, in barrels and similar packages, 3@4; fancy white stock, in cans, 6@7. Beeswax lower—26½@27.
WESTCOTT COMMISSION CO.,
July 8. St. Louis, Mo.

ST. LOUIS.—*Honey.*—Honey market very slow. We quote comb, 10@12; extracted, in cans, 5½@6; in barrels, 4@5. Prime beeswax, 27.
D. G. TUTT GROCER CO.,
July 8. St. Louis, Mo.

FOR SALE.—White comb honey, 14 and 16c, on board cars.
G. R. ROUTZAHN, Menallen, Pa.

ALFALFA IN ARIZONA.—We will sell you alfalfa honey F. O. B. Phoenix at 4½c in 1000-lb. lots or more. Less than 1000 lbs. at 5c in five-gallon cans. Car lots a specialty.
J. P. IVY,
Secretary Bee-keepers' Association,
Phoenix, Maricopa Co., Arizona.

ALFALFA HONEY, very white, thick, and rich. Two 60-lb. cans at 7c. Same, partly from cleome (tinted), 6c. Samples, 8c.
OLIVER FOSTER, Las Animas, Col.

FOR SALE.—600 lbs. of comb honey, in 1-lb. sections, in 24-lb. shipping-cases, at 12c per lb.
EDW. SMITH, Carpenter, Madison Co., Ill.

No. 1 extracted honey in 50-lb. pails at 7c per lb.—\$3.50.
J. B. MURRAY, Ada, O.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb and Prompt.

CHAS. ISRAEL & BROS..

486, 488 & 490 Canal St., Corner Watts St., N. Y.

WHOLESALE
DEALERS &
COMMISSION
MERCHANTS.
Established
1875.

HONEY

—AND—

BEESWAX.

LIBERAL
ADVANCES
MADE
ON
CONSIGN-
MENTS.

THE FOUR SEASONS RUNNERLESS STRAWBERRY.

Grown from French seed. Fifty or sixty fruit crowns form and fruit on each plant between May and November. Berries small and shuckless. Plants 10c each.

A. T. GOLDSBOROUGH,
Wesley Heights, Washington, D. C.

Stingless Bees! See page 525, GLEANINGS, June, 1895.
H. Alley, Wenham, Mass.

KIND WORDS FROM OUR CUSTOMERS.

I think GLEANINGS has the most solid comfort in it of any paper of its size that I ever saw. It is good to read to get inspiration and enthusiasm, and it is good to read when one wants to rest. Please continue your exposure of the advertised frauds. If all the best papers would follow your example in this respect it would be of great advantage to the world.
JOSEPH H. REED.

Benton Falls, Maine, May 18.

I have just received order No. 37,275 all right. I have not tried any thing but the Crane smoker, and that certainly is a daisy. The first thing I tried it on was the worst colony of bees I have. They always give me battle on every inch of their territory; but with the Crane smoker they turned after the first fire.
W. S. MASON.

Thorndale, Texas, May 14.

Friend Root:—You don't know how much good your little sermons which you publish in GLEANINGS from time to time have been to me. I used to think I was as good as anybody, and I did not have my name on the church-book; but when I read your sermons, and at the same time took the Bible as my guide, I soon saw that I was the chief among sinners; but I know now, thank God, that it was through the instrumentality of A. I. Root and God's word that I was placed on the solid rock, Christ Jesus.
FRED LEININGER.

Ft. Jennings, O.

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Golden or Leather Queens

From the Queen Specialist. . . .

Golden queens from Duvall's best; dark leather queens bred from the celebrated Manum stock (queen mother selected and tested by him).

My drones are all bred from a colony that wintered successfully on summer stand without protection, bees gentle and excellent workers.

This colony is the result of seven direct crosses of golden Italians, selecting the most desirable for breeders each spring, *regardless of color*.

Nearly every queen mates with selected drones as there are no bees within several miles of my yard.

Duvall strain will produce nearly all 5-banded bees, Manum stock 3-banded.

Price 75 cts. each. Safe arrival guaranteed, and shipped by return mail if desired.

Money-order office, North Dana. Address

JAMES WOOD,

North Prescott, = Massachusetts.

In writing advertisers mention this paper.

The Best of Untested Queens.

50 cents each, \$6.00 per doz.

Queens warranted purely mated, 70 cts. each.

Tested, \$1.00; \$10.00 per doz.

Queens are from imported and home-bred mothers; are large, vigorous, and prolific. Orders filled promptly. Safe arrival and satisfaction guaranteed.

J. W. K. SHAW & CO., Loreauville, La.

Special Offer.

For July and August only, to those who have never tried our strain of honey-gathering Italians, we will send one sample queen for the trifling sum of 50 cts. One queen only will be sent at above price to one address. All queens warranted to be purely mated. All orders filled by return mail, weather permitting. Address all orders to

LEININGER BROS., Fort Jennings, O.

Please mention this paper.

Control Your Swarms, Requeen, Etc.



Send 25c for samples of West's Patent Spiral queen-Cell Protector, and Pat. Spiral Queen Hatching and Introducing Cage, also best Bee-Escape, with circular explaining. Twelve Cell-protectors, 60c; 100, \$3. 12 cages, \$1; 100, \$5, by mail. Circular free. Address **N. D. WEST, Middleburgh, Scho. Co., N. Y.**

Sold also by all the leading supply-dealers.

Please mention this paper.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must say you want your ad't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—I still have some fine mastiff female pups past two months old. I will exchange for honey, shotgun, or watch. Write at once as they must go.

SCOTT BRILLIANT,
Millwood, Knox Co., Ohio.

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.

ANTHONY OPP, Helena, Ark.

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.

J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 28-in. planer, power scroll saw, all iron; tenoner, and mortiser, for portable sawmill, or other wood-working machinery. Will give a bargain for cash.

GEORGE RALL, Frenchville, Tremp. Co., Wis.

WANTED.—To exchange foundation-mills and honey-extractors for honey or wax.

I. J. STRINGHAM, 105 Park Place, New York.

WANTED.—A foundation-mill, in exchange for other goods. L. L. ESENHOWER, Reading, Pa.

WANTED.—Information regarding any locality in Southern Georgia, Alabama, or Florida, possessing good fall and early spring honey resources.

Please address

SOUTH FLORIDA APIARY CO., New Smyrna, Fla.

WHAT have you to exchange for a 200-egg size Invincible Hatcher?

G. J. STURM, Mt. Erie, Ill.

TWO practical young farmers, both married, want to work some gentleman's farm on shares or for salary; prefer a good stock farm with some rich bottom land. We mean business. Write to-day.

MANLEY BROS., 197 Yale, Mich.

WANTED.—By a young man lately arrived in this country, a temporary or permanent opening in an apiary, or gardening business, preferably situated in the State of New York or contiguous States. Applicant knows something of the care of bees, and is fond of a healthy outdoor life. A cheerful home rather than salary an object. Is a trained clerk, with good recommendations.

Address C. C. DOORLY, 355 W. 31, N. Y. City.

WANTED.—To exchange invalid and fracture beds in hard wood, "Perfection" brooders and "Perfection" bee-hives, 8 to 12 frame capacity, contraction-device arrangements for comb honey—best in use; sections, foundation, frames, etc., for comb and extracted honey, pneumatic-tire Safety bicycles, good cross of poultry, chicks or year-old stock, and pure breed, all kinds; also chicken and duck eggs wanted, to hatch.

CHAS. L. HILL,
Box 495, Dennison, Ohio.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they wish to dispose of, we will insert notices as below, first insertion free of charge. After the first, 10 cents per line. We do this because there is hardly value enough in these queens to pay for buying them up and keeping them in stock, and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I have 25 mismatched Italian queens for sale at 30 cts. each, or 4 for \$1.00. A good share of their bees are yellow.

ALBERT HINES,
Box 532, Independence, Ia.

Queens Sent Promptly.

in nuclei enables me to sell tested queens, of this year's rearing, at \$1.00 each, or six for \$5.10, and to send them by *return mail*. More than six queens (tested) will be sold at 75 cts. each, and will *probably* go by return mail unless the order is unusually large, but I don't promise that such shall be the case when the number ordered exceeds six. As a matter of fact, however, every order received in the last two months has been filled the *same day it came*. One queen and the REVIEW for \$1.51. Samples of the REVIEW free.

W. Z. HUTCHINSON, Flint, Mich.

Five Assistant Bee-Editors

Please cut out this whole ad. and sign and mail it to—
56 Fifth Ave., Chicago, Ill.

Please send to me the AMERICAN BEE JOURNAL for 3 months (13 numbers). At the end of that time I will send \$1.00 for a year's subscription, or 25 cts. in case I decide to discontinue. You will please address me thus:



Sample Copy Mail d Free!

Name.....

Post-Office.....

State.....

Proof Beyond Doubt.

I opened several hives. He had no veil; was in the apiary $\frac{3}{4}$ of an hour; was not bothered once. Try them. Untested guaranteed queens, 75c. Send for wholesale price list.

A customer, looking over my 400 hives in home apiary, said, "Where are your bees? Mine were flying all around thick this morning," I said, "Just stop; look down at any hive." He was amazed. They were just pouring in thick with their heavy loads. This proves two things—they can't be excelled as workers, and quiet.

Wm. A. Selser,
Wyncote, Pa.

Golden Italian

little, which he selected and tested out of 1000, for his own special use; he said this queen is a better one than the

World's Fair Queen,

which was valued at \$50.00. Also

Italian Queens from one of A. I. Root's very best imported breeders; price of queens, untested, 55c; six for \$3.00; 12 for \$5.50; tested, \$1.00 each; 6 for \$5.00. No disease. Shall run 400 nuclei. Ask for free circular, which may be worth dollars to you if you buy queens. Safe delivery and satisfaction will be guaranteed in each and every case. 13-18c

H. B. QUIRIN, Bellevue, Ohio.

One-piece Sections, Cheap!

In order to reduce stock, we offer No. 1 Cream Sections, $4\frac{1}{2} \times 4\frac{1}{2} \times 7$ to foot, $1\frac{1}{4}$, $1\frac{1}{2}$, $1\frac{3}{4}$, and 2 inch:

1000	for \$1.50,
5000	at 1.40 per M.,
10000	" 1.35 " "

We also offer No. 1 White sections, $5\frac{1}{2} \times 6\frac{1}{2} \times 2$, open on two $5\frac{1}{2}$ sides:

1000	for \$2.50,
5000	at 2.35 per M.,
10000	" 2.25 " "

G. B. Lewis Co., Watertown, Wis.

In responding to these advertisements mention this paper.

A Full Line of Popular SUPPLIES

Always on hand.

1 lb. sq. flint jars, \$5.00 a gross, sent from this city. Untested queens, now ready, 75 cts. After July 10th, 3-frame nuclei and Italian queen, \$2.50. Discount on quantities. Catalog free.

I. J. STRINGHAM,
105 Park Place, New York.

Dovetailed Hives.

Sections, Extractors, Smokers, and every thing a Bee-keeper wants. **Honest Goods at Close Honest Prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

QUEENS. IMPORTED ITALIAN MOTHERS ONLY.

Untested, 55 cts.; doz., \$8. About 11 out of every 12 will make fine tested queens, and for gentleness and industry we defy the world to beat them. Safe delivery. Money-order office, Decatur. eif

CLEVELAND BROS., Stamper, Newton Co., Miss.

Imported Italian Queens, \$3.50 each. Tested, \$1 to \$1.50. Untested, 75 cts. each.

W. C. FRAZIER, Atlantic, Iowa.

FOR SALE. ITALIAN BEES AND QUEENS. QUEENS, 75 CTS.

MRS. A. A. SIMPSON, SWARTS, PA.

If Tons of Honey,

Pleased Customers, and Increasing Trade is a criterion, then my queens are satisfactory. **Warranted** purely mated queens from 5-banded strain, 75c; six for \$4.00; dozen, \$7.50. Safe arrival and satisfaction guaranteed. Send for free circular.

J. B. CASE, Port Orange, Vol. Co., Fla.



Vol. XXIII. JULY 15, 1895. No. 14.

STRAY STRAWS FROM DR. C. C. MILLER.

LINDEN gave my bees a taste, the trouble being the scarcity of trees.

I'M CULTIVATING a strain of bees that can live where there is no pasturage.

NO HIVE with more than eight frames has given a single pound of surplus for me this year.

"TOP SWARM" in England means a prime swarm. I don't think they ever say "bottom swarm."

GOLDEN CARNIOLANS. A correspondent requests the experience of myself or others with these bees. I've had no experience with them.

FOR NUMBERING HIVES, is there any thing better than movable tin tags? If not, what can I buy the numbers for? [Tagboard manilla, 50 cts. per 100.]

I SHOULD HAVE ADDED in a preceding straw, that my eight-frame hives did no better than the larger ones. Neither of them gave any surplus. So I can't come to any decision this year.

YEARS AND YEARS ago I got from Adam Grimm hives having spacing-arrangement with the principle used on p. 523. Have your spacers attached to the frame, not to the hive. [Yes, sir, every time.—Ed.]

WHITE CLOVER sometimes blooms late, making a second spurt as a kind of afterthought. But I never knew this late bloom to be used by the bees; whereas, they seem to work busily on the latest bloom of sweet clover.

ALFALFA looks almost exactly like sweet clover, unless I've been fooled as to what alfalfa is. Why has no one ever told us this? But when alfalfa blooms, the blossom is purple, and the seed-pod looks a little like a snail.

I DON'T CARE for color or bands on the outside of bees, only so they have the good working qualities inside. But the outside marks help me to judge something of the inside qualities. [But do you think lots of yellow is an indication of longevity and energy?—Ed.]

THE HIVE DISCUSSION will be interesting and useful for five years more, if it keeps bringing out good points. Now do you catch on, Mr. "Ed."? [Yes, but I want to be sure that a majority of our readers feel as you do.—Ed.]

I DIDN'T KNOW you were so heavily loaded, Ernest, when I came at you on that section-holder business, p. 517. Just as quick as I can get myself assembled together I'll come at you again. [I still have lots of ammunition left.—Ed.]

C. DAVENPORT gives some pretty good arguments, p. 513; but after all, I've a kind of notion that bees will put as much honey in a nail-keg as in the best hive, if left without help in each case. [But I was assuming that each was in an equally normal condition.—Ed.]

CEMENT-COATED NAILS are among the new things, and I didn't think I'd like them better than rusted nails; but I've been using them, and like them very much. The advantage of being able to use lighter nails with the same holding power is not a small one.

W. W. WOODLEY complains in *British Bee Journal* of foundation in center sections left untouched when others are sealed. He thinks it may be that wax sheets were too thick, and pressed when too cold, making the foundation too hard for bees to work—a hint for foundation-makers.

THAT PHRASE, "catch on," is slang for which there is no excuse; and after I get through using it in this straw it never ought to be seen again in GLEANINGS. "Understand" expresses the idea just as clearly and forcibly. [Beg pardon, it doesn't; but then, perhaps I can get along with the less expressive term.—Ed.]

"WHOOOP-DE-DOODEN-DOO!" That's what I said when I read a certain editorial item in GLEANINGS. Then I added, "So they've found out at Medina that there's value in sweet clover." If sweet clover, alfalfa, and a few more honey-plants, get a high seat as forage-plants, the future of bee-keeping may turn out better than the good old times before the wild flowers were all destroyed. [You shouldn't say "Whoop-de-dooden-do," because "hip, hip,

hurrah!" "expresses the idea just as clearly and forcibly." Do you c-c-catch on?—ED.]

THE PLAN of sending out with all supplies the right kind and quantity of nails to put the supplies together is one of the real comforts of a bee-keeper's life. Heretofore it was always a trouble to know what was the best nail for a particular purpose; and then when I did think I knew, likely as not I couldn't find at the store the kind I wanted.

YOU ASK, Mr. Editor, p. 512, "How would it do to have smaller membership fees and a larger membership?" Just the thing. Have the cost so small and the gain so large that every bee-keeper will want to be a member, even if he never attends a meeting. [This is an important question. I'd like to get expressions from others.—ED.]

MORE SUPERSEDURES are observed with clipped queens than with whole wings, perhaps two to one; for the man who has his queens clipped observes every case of supersedure, and the others are not noticed one time in five. But the queens with whole wings are superseded all the same. [We never clip, but our queens get "superseded all the same."—ED.]

NOTWITHSTANDING the dearth, June 8 I found at the Wilson apiary two colonies with queen-cells. I thought I'd settle their hash, and took away all brood and honey but two frames. Would you believe it? July 2 I found the insane things had both swarmed. At any rate, both old queens were gone, and a young queen had just emerged. [You shouldn't say "settle their hash," because it is slang. Eh?—ED.]

DR. RAMBLER thinks I wouldn't overeat if I deserted my wife and lived on crackers and cheese. I'm sure I shouldn't for long. A cracker, with its faint aroma of old grease, is one of the things I abominate, and

"Cheese is a mighty elf,
Digesting all things but itself."

If you'll excuse me, Rambler, I'll stick to the wife and the delicious bread she makes. [So shall I.—ED.]

ANENT that item on p. 526, isn't it true that bees always *think* they have a queen when they swarm? I had a queenless colony swarm, but the queen was removed not more than two or three hours previous, and I think they hadn't missed her. How long had your bees been queenless? [Some time; and that morning, previously all brood was taken away. We were preparing them for cell-building, and we wanted to get them fairly "howling" for brood and cells.—ED.]

How THICK is worker comb? On p. 525 Heddon calls it $\frac{1}{8}$; Cowan says "about $\frac{1}{8}$;" Dadant's Langstroth "about 1 inch," and Prof. Cook wisely says it varies. I think new comb will be found $\frac{1}{8}$ thick, (is it ever less?) increas-

ing in thickness with years of brood-rearing till it reaches one inch or more. The increased thickness is all in the septum, the depth of the cells being always the same. [Seven-eighths of an inch is a fair average for brooding-combs not over five years. I have measured scores of brood-combs from different hives, and have found them to register almost exactly seven-eighths.—ED.]



Our Hive Symposium.

SIZE AND SHAPE OF BROOD-CHAMBERS.

ARGUMENTS IN FAVOR OF DEEP HIVES FOR BROOD-REARING; DIVISIBLE BROOD-CHAMBERS NOT A SUCCESS.

By J. F. McIntyre.

Finding the ten-frame L. brood-chambers too small for this locality, Mr. R. A. Holley and myself have been experimenting this season with the object of deepening our brood-chambers without altering the other dimensions, so we could use all the combs and hives which we have on hand for supers, in case we decided to make a change. Mr. Holley was one of Mr. Heddon's pupils, and was prejudiced in favor of a double or horizontally divisible brood-chamber, so we tried two experiments. We each made a number of hives with 10 frames 7 inches deep, and several with 10 frames 12 inches deep, both the same length as the L. frame. After running through the breeding-season we have compared notes and agree exactly. The verdict is, that Dadant is right and Heddon is wrong; and we are both very positive that we want no horizontally divisible brood-chambers in our apiaries. On the other hand, we are both so pleased with the frames a foot deep outside I fear that, if some one doesn't hold us, we shall change all of our brood-chambers to that depth.

One thing that pleased us, and was rather a surprise, was the fact that the bees stored little if any more honey above the brood in the deep frames than they did in the shallow or L. frames. This gave the deep frames nearly twice the brood capacity of the L. frame, although only a fourth deeper. The shallow frames were a disappointment in every way. We could not produce nearly as much brood and bees in them, by any kind of manipulation, as we could in the deep hives. The queen did not pass readily from one section to the other; and, while she was laying in one section, the bees would store honey in the other. Alternating did no good. They would not remove the honey from the lower section, and place it in

the super according to theory. I think the reason was because the sections were too large for that kind of brood-chamber. I would say, if each section of a horizontally divisible brood-chamber is anywhere near the capacity of the queen, one or the other will soon be neglected, and filled with honey instead of brood.

Mr. R. Wilkin tried using two eight-comb L. brood-chambers (which were about the same capacity as our two seven-inch sections) on an extensive scale this season, and reports the same experience as we had with the shallow hives. The queen did not fill both sections satisfactorily, and soon neglected one altogether. From a non-swarmling extracted-honey standpoint, give us ten L. frames, twelve inches deep outside, for a brood-chamber.

Fillmore, Cal., June 1.

[Personally, I have never experimented with deep brood-chambers; but I have observed this: that we in our locality, only a few miles from H. R. Boardman, while following precisely the same methods of wintering indoors, do not have the same success that he does with his deep hive. While we lose indoors from 10 to 25 per cent, Mr. Boardman loses none. Perhaps the depth of brood-chamber may have something to do with it; but after all, take the reports as they generally run, there does not seem to be much difference in results, so far as wintering is concerned, between the Langstroth size of frame and a square one.

But friend McIntyre's argument is, if I understand him correctly, that more brood can be secured by using a deeper frame. Perhaps he is right.

His experience, and also that of Mr. Holley, agrees almost exactly with tests that we have made here at the Home of the Honey-bees; namely, that bees do not breed as well in divided brood-chambers as in one in which there is no division. Of course, we have tried only a hive or two at a time; but the results, extended over two or three years at different times, have always pointed the same way. Last year, when I visited Dr. Miller I found he had been experimenting with divisible brood-chambers—or, rather, a few shallow extracting-chambers that had been adapted for the purpose. If I remember correctly, he had difficulty in getting the queen to breed properly in two or even one at a time; and I think he then concluded that full brood-chambers were far better for breeding. The experience of Dr. Miller, of ourselves, of friends Wilkin and McIntyre, of Mr. Holley (a man who was formerly predisposed in favor of double brood-chambers), seems all one way. We should really like to hear from those who have tested this matter impartially—that is, from those who have no selfish interest at stake. GLEANINGS wants the truth, even if it should turn our supply department upside down.

Referring again to the cubical hive, here is another article quite in the same line with what has been already expressed by Mr. McIntyre, except that he would prefer a hive entirely cubical.

THE CUBICAL HIVE.

ADVANTAGES FOR WINTERING, AND SURPLUS HONEY; SELF-SPACING FEATURE, ETC.

By F. A. Snell.

I have read with deep interest the numerous articles which have been published in our bee-

journals for the past few months upon the form and size of bee-hives, or, more particularly, the brood-chamber. The articles have been ably written, and in that kind spirit so commendable. In the 28 years that I have read on the subject of bees through our journals, I must say the subject of hives, or forms of them, has not before been discussed with the force of argument which has characterized these of the last few months, by so large a number of solid, practical bee-keepers.

As I have been keeping bees nearly all my life, and in my present location 35 years, I have experimented a good deal on a small scale with hives of various forms and sizes. First, with straw hives; then with box hives of various forms; later on, with the Cox, Langstroth, American, New Idea, Eureka, and one having 12 brood-frames 18x22 inches, having no bottom-bar, combs seven inches in depth. I have also used the chaff hive. I have tried placing boxes for surplus in front and rear of brood-chamber, and at sides of brood; also on top in addition to side storing.

After testing the various ways and sizes of brood-frames I decided upon a hive holding ten American brood-frames, 11 $\frac{3}{4}$ inches square, inside measure, and ten to a hive, which strikes a medium between the deep and shallow brood-frames. All may not be familiar with this frame, so I will state that the top-bars are tight-fitting, with the exception of two openings 2 $\frac{1}{2}$ x $\frac{5}{16}$ inches, which affords passageway to the surplus-receptacles. The frames are spaced at the bottoms by large-headed eight nails, which keep the frames rightly spaced at all times.

Each hive-body has a movable side, opening half-way down from top. This hive may be tiered up as desired, and used for comb or extracted honey, as the apiarist may elect. I will give here some of the reasons why I prefer this form and size in a bee-hive. I can winter my bees more successfully; they pass through the spring months better, and are in much better shape when the honey season opens in June.

With me the colonies in deep frames almost invariably wintered well where supplied with good wholesome food, and a large per cent came out with the brood-chamber crowded with bees, while those in frames of 8 $\frac{1}{2}$ inches depth wintered poorly in the cellar or packed on summer stands. Every apiarist knows full well what success in wintering means. If we can only have strong colonies May 1, with brood-chamber well stocked with food, we are pretty sure to secure a crop of surplus if it comes, provided the form of hives is such that it can be placed to best advantage to the owner.

When the bees begin to whiten the combs along the top-bars in early clover bloom, as they will with a fair flow, the surplus room should be given. If the hive is of compact form, the bees will commence work in all parts

of the receptacle at nearly the same time, and, as a result, all sections will be completed ready for removal about the same time, or ready to raise up and insert an empty one between it and the brood-chamber, which I do, as I have practiced this for over 25 years, long before the sectional box was used. If the surplus honey is sealed at about the same time in all parts of the case, the case can be removed promptly when full, and present the neatest appearance possible. The surplus will be a little whiter in appearance where there is a little capped honey under the top-bar than where that space is taken by brood. With a small brood-nest it has always been my experience that but little comb honey can be secured, or that such will cast a swarm before work has been well begun in the boxes.

With a large shallow brood-nest, work was readily begun in the central part of the super, and gradually pushed to the extreme parts; but too much time elapsed ere the remote parts were completed—so much so that the central combs were badly soiled by travel of the bees from the dark combs so near at hand in the brood-nest. The same rule will hold when tiering. With the hive I use, no honey-board of any kind is needed for comb honey, as I have not yet had the first queen to enter the $4\frac{1}{4}$ sections. Four or five brood-frames can be moved sidewise at a time if desired, as is the case with closed-end frames, which is very convenient.

One point I omitted in the proper place is this: In the hive described above as my preference, I will say that, in a good honey-flow, I have often two or more supers well advanced before the colony casts a swarm. With two hives now in my yard, holding ten brood-frames $11\frac{1}{4} \times 8\frac{1}{2}$ inside measure, they have never had, when they survived the winter, one case near completion ere they sent out a swarm, invariably a small one, while the larger hives send out swarms that count, if any.

Economizing heat in a brood-chamber during winter and spring, and where the stores should be, I have written on in the future.

I have taken GLEANINGS from the first.

Milledgeville, Ill., June 17.

[We haven't heard from Doolittle on this hive discussion yet; and as this article is somewhat in his line of experience, we should like to hear from him. In the mean time we received another article from C. W. Dayton, also in the same line.—ED.]

THE BEST CAPACITY AND SHAPE FOR BROOD-CHAMBERS.

BROOD-CHAMBERS OF VARIOUS SHAPES AND SIZES IN MANY LOCALITIES; A GOOD ARTICLE.

By C. W. Dayton.

In 1882, in my apiary were 120 brood-chambers of 3466 cubic inches capacity, and contain-

ing 16 Gallup frames, $11\frac{1}{4} \times 11\frac{1}{4}$ inches. The inside measure of this hive was one foot in depth and width, and 24 inches length. It was designed to run the whole number of combs for brood-rearing up to the honey-harvest, when an upper story was to be added for extracting. Or, where the colony was operated for comb honey, the least-occupied combs were removed, and the space filled with two-pound sections. Such sections, being six inches square, four of them exactly filled the end of the hive when resting on the bottom-board. After three years' use it was found that not more than half of the colonies would become populous enough to require an upper story, and a large share of the extracting was done from a single story. About this time the ends of the hives were sawed off to reduce the number of combs to twelve. After a couple of seasons' use more, the brood-chambers were decided to be still too large because there were from three to six combs in the ends which contained honey instead of brood. The honey was wanted in the upper story. The hives were sawed off again, reducing the number of combs to nine. Then the brood-chamber contained 2088 cubic inches. I used that size of brood-chamber several seasons following, with perfect satisfaction so far as size of brood-chamber was concerned. The lower story contained brood in a compact form, and the super story caught nearly all the honey whenever the honey-flow was of any consequence. Yet it was found that attention was needed to provide sufficient stores for winter. This was usually done by inserting full combs of honey reserved for that purpose in extracting-time. By thus providing winter stores it makes a little more labor at the time of preparing the colonies for winter, but this is far more than regained by not being encumbered by unnecessary stores and combs in the hives in the busy season.

About one queen in 40 will appear to need two stories for brood; but I believe that such brood, if compactly disposed, might be all put in the one story.

In 1889 I began to look favorably upon the production of comb honey in one-pound sections; and the measurements of the Gallup hives were found exceedingly unsuitable for the adoption of the standard section. I was compelled to adopt the Langstroth measurements. For three seasons I handled 40 colonies, followed by one season with 250 colonies on Langstroth frames in both eight and ten frame hives. As a ten-frame colony is examined it would seem that the same amount of brood could be contained in an eight-frame hive; yet where a colony has been brought up in an eight-frame hive it seems to possess less available strength. The eight-frame colony does not occupy the super in greater force than does the ten. But when a ten-frame colony is contracted down to eight there is an increase of

energy in the super. This is too apparent for mistake. I account for it in this wise. In a ten-frame hive there is seldom any brood in the two outside combs. This leaves eight. There is also about one comb of pollen. If the pollen is scattered it is all the same—seven combs of brood. Apply the same deduction to the eight-frame hive, and it leaves five combs for brood. Allowing $1\frac{1}{2}$ inches to the comb, and measuring the lateral diameter of the brood-sphere, it is $7\frac{1}{2}$ inches, with a frame length of 17 inches. Now, the ten-frame hive exceeds the eight-frame, not by the two segments of the sphere's edge, like the slabs which are sawn from the log, but it is equal to two complete and square planks from the heart of the log. Two such combs of brood should enhance the strength of the colony one-half instead of one-fourth, as might at first be supposed.

The disproportionate length of frame may not cut so prominent a figure in a Southern California climate as in some of the colder latitudes—Colorado, for instance. In Colorado the nights, even late in spring, are cold. Then the middle of the days are very sunny and warm. When the hives face the south, the sun beats against the end so that it draws the brood up against the south end-bars of the frames, so that even the corners are all filled compactly with brood. I have seen brood so far to the south in eight combs, that, if six inches of the north ends of the combs were cut out, not a cell of brood would be disturbed. In Wisconsin there are more clouds during the days, and the days and nights are nearer of the same temperature. When two colonies were placed side by side with an inch of pressed chaff between the hives, the brood in each colony occupied the side of the hive nearest its neighbor. In this case the side combs contained brood on both sides, and more in quantity than any other combs in the hives. This happened on a cold unfavorable spring. The remote sides of the hives were unprotected from the inclement weather. If the brood will be placed far away from the cold end of a Colorado hive, why would it not be placed as far as possible from all four sides of the Wisconsin hive?

When the two frames are taken out of the ten-frame hive it has the effect to form a brood-chamber which is longer or slimmer in effect, than the original ten-frame chamber because of the squeezing or narrowing up of the brood-sphere. In other words, and in consideration of climates, kinds of weather, and different seasons, there is less consequence in *how much* space is taken away from a hive than in *how it* is taken away. Working against the natural tendency involves expenditure of heat and energy.

Had there not remained a broodless space in the ends of the combs of the ten-frame hive, the eight-frame hive would have never suggested itself. Nearly every one who went down

to the eight-frames has wished himself back again. Instead of lessening the number of frames, why not try the same number of less length? I have kept bees from a bread-and-butter standpoint in Wisconsin, Iowa, Colorado, and California, and have found the hive from which I never expect to change. Climates and localities do not affect its utility. It is the crossway Langstroth of ten frames, and 2020 cubic inches. The eight-frame L. contains 2100, and my nine-frame Gallup hive 1980 cubic inches. The eight-frame L. is large enough, but it is out of shape. After using ten $13\frac{1}{4}$ -inch frames to the hive for three seasons I am sure that the colonies become just as populous as with the $17\frac{1}{2}$ frame. It is calculated that food shall be stored in the ends of the long frames. In the short frame there is not. If I wished a brood-chamber to contain stores besides the brood, there would need to be 12 frames.

For winter, or for an abundance of stores at any time, a half-depth story remains on the hive, and nearly the whole supply of honey is kept in it. They very readily enter and refill a receptacle from which they are accustomed to obtaining their daily rations. The brood-chamber is $14\frac{1}{4}$ inches square, and it is $14\frac{3}{4}$ inches from the bottom-board of the hive to the top of the super, forming almost a perfect cube.

With the super there is always a good supply of stores, always a receptacle to catch a small run of surplus, and the surplus-receptacles are brought very close to the brood. I use two half-depth supers for extracting, so when one is being emptied there will remain one upon the hive.

I have arrived at this 2000 cubic inches capacity of the brood-chamber from two different starting-points in the last 13 years, while Mr. B. Taylor has occupied 45 years, and is not quite there yet. His frame is $8\frac{1}{4}$ inches deep. Had it been $8\frac{3}{4}$ inches, a wide frame of the same dimensions might accommodate two rows of $\frac{1}{4}$ sections. I should like to know of the advantages of that $\frac{1}{4}$ -inch.

I did not expect to keep bees when I came to California; but the ease with which they could be managed induced me to start with 43 colonies in the spring of 1893. Since that I have purchased none, but have disposed of (by sale and trade) 120 full colonies, and produced 12,000 pounds of honey, and am now extracting from 125 colonies.

Florence, Cal., June 25.

[And here is still another in the same channel:

ALWAYS GETS AT LEAST 200 LBS., EXTRACTED,
WITH A SMALL HIVE.

I want to say a word in favor of small hives. I never fail to get more than 200 lbs. of extracted honey from my small hive. I commence extracting between the first and fifteenth of May, and continue until the last of July. I ex-

tract once a week, and get two gallons from each hive. Some one may say, "Why don't you make a hive that you can extract four gallons from at a time, and take out your honey only once in two weeks?" I have tried that, and my bees would not fill one in a month; but they will fill one half the size in a week. Some may say that honey will not keep if taken out once a week. But I know better. It will in this climate. I never had a pound of honey spoil in my life, and I have extracted once a week during the honey-flow for years. I think much depends on a deep brood-nest.

I have three sizes of hives. The one that I get the most honey from is 12x12 inside; the brood-nest is 12 inches deep, with 8 racks. The extracting-super is 12x12, inside measure, with 7 racks. I had ten hives 12x18½ inside, 9 inches deep. I tried them two years, and they did very poorly. I cut them off to 14 inches long inside. Since that they have done much better. My experience teaches me that 9 inches is not deep enough for a brood-nest. I have kept a strict account of the amount of honey I have produced for 4 years, so I know what I am talking about when it comes to large and small hives.

I have taken GLEANINGS for a number of years. I like it better all the time.

Could not some one get a new pair of pants for Rambler? I am tired of those old plaid trousers.

JOSEPH I. EARLE.

Bunkerville, Nev., June 24.

[With all this available material before him, friend Doolittle ought to be pretty well loaded.—Ed.]

A SUPERIORITY OF QUEENS MORE THAN OF HIVES.

Friend Ernest:—I have read Mr. Davenport's article, and I think he shows a superiority of queens more than hives. Please note in Rambler's article, the 24-frame hive of Mr. Morley, 900 lbs. of honey cut out in one season, and your editorial, the improvements in hives tend to *less labor*, not *more honey*, and then think of keeping two men to *feed*. April 13th I selected 4 hives—two 8 and two 10 frame—am keeping a record of my work, and amount of honey from each. I will let you hear from them at the close of the season.

Sarasota, Fla., June 1.

S. C. CORWIN.

TEN-FRAME HIVE AHEAD.

We find the ten-frame hive is much better than the eight-frame hive that we have been using. We changed five colonies from eight to ten frames, and placed them with an equal number of eight-frame hives, giving the ten-frame hives two frames of foundation. Now for the result: Four of the five eight-frame colonies have swarmed, but not a swarm from the ten-frame as yet. Each one of the ten-frame hives has filled 28 sections. We have placed another half-section, filled with founda-

tion, under the one already filled. This was done a week ago. We find to-day, June 26, the foundation drawn out, and partly filled with honey. The eight-frame hive that did not swarm have filled 24 sections, and we have put on another half-story with foundation. As to the strength of the colonies in the spring, they were about equal, or in favor of the eight-frame. The ten-frame hive is far superior to the eight-frame in this one point—swarming. We will give you a full report later.

Morristown, Tenn., June 26. GLENN & CO.

RAMBLE NO. 136.

AT HYDESVILLE.

By Rambler.

In Hydsville we discovered one of the most renowned bear-hunters on the Pacific coast—Mr. Herbert Hansen, a Swede, and one of the early pioneers, a wool-producer and owner of thousands of sheep. He had killed 512 bears, 308 mountain lions, and a greater number of deer. In the early days it required eternal vigilance to protect the lives of the herds of sheep against the depredations of wild beasts; but in these more civilized days it requires hunters of experience and the help of trained dogs to hunt the bear. We three wanted to enjoy a bear-hunt; but circumstances worked against us, and we were prevented, and did not secure bear-skins for rugs as we desired to.

Our first Sunday in Hydsville, Bro. Pryal and I attended church, where we found a progressive Christian spirit. The pastor gave us a very good sermon upon Sabbath observance. He told his flock that, if people came to visit them, it was their duty to invite the visitors to attend the church services with them; and the young ladies were admonished in like manner to invite their Sunday-evening gentlemen callers to spend the evening with them in church. Now, Bro. Wilder was a "gallyant young man" with the ladies, and proceeded that evening to make a call. It is evident the minister's words were not lost upon the good young ladies; for in the evening Mr. Pryal and I were quite surprised to see Mr. Wilder meekly led in by two young schoolma'ams and safely sandwiched between them in the front seat in the church.

In my last Ramble I mentioned the fact that an apple-tree here will produce five barrels of apples in five years after planting. I have no reason to doubt the Blocksburg doctor's statement, for there are other things here equally marvelous. For instance, plant a schoolhouse anywhere in Humboldt Co., and in five years it will mature a crop of 50 schoolma'ams. The schoolma'am mania is so strong here that, in the rancher's families, triplets are not rare, and twins abundant—mostly girls. There are, therefore, more schoolma'ams to the acre here

than in any other like area in the State; and, aside from being mere schoolma'ams, I must say they were very smart and prepossessing. Up to our arrival in Hydesville, Mr. Pryal had appeared like a well-regulated, decorous, sedate, dignified, polite, "keep on your side of the fence and I'll keep on mine" sort of bachelor. He had given the fair sex generally to understand that he was engaged—to the Oakland waterworks; but here, after having the satisfaction of catching a few little fishes from Eel River, a change came over his demeanor, and for several days in succession he attended the county fair. Was this because he was interested in cabbages, corn, cheese, or the biggest rooster or the littlest hen? No; it was in the symposium of schoolma'ams, and Eureka was

By a happy combination of events, and a little sunshine in this land of the mist, I survived the wreck, brought order out of chaos, and what was left of us dropped into Port Kenyon, at the mouth of Eel River. Here, after getting Bro. Wilder into the warehouse, I had time to survey the country, and found it to possess the following features:

Eel River, after meandering through many miles of mountain scenery, mingles its waters with several other mountain streams, and departs mildly, just below Port Kenyon, into the Pacific Ocean. The rich bottom lands of the Eel River Valley afford succulent pasturage for many dairies, supporting all the way from 25 to 300 cows each. Creameries are abundant, and the resultant butter finds a ready



CLIMAX ENG.
CLYDE, O.

CREAMERY AMONG THE REDWOODS.

his theme (Eureka is where *the* schoolma'am lived). I could not, however, waste much time upon Mr. Pryal. Partner Wilder, since that fateful Sunday evening, was also afflicted with symposima'ams; there was trouble and some ominous threatenings in the air; roosters crowed; dogs howled; wind blew; rain descended; the hotel across the way caught fire; a weird earthquake rattled us, and at last that terrible symposium of schoolma'ams (was it a dream?) some younger and some older lugged Pryal and Wilder and our outfit off on their shoulders, leaving the Rambler in sackcloth and ashes. Whether it be a dream or not, that was the last we saw of Bro. Pryal. He and Susan B. vanished in the mist toward Eureka. Our poor dog, too, vanished into a sausage-factory.

market in San Francisco. In all of Eel River Valley there was not that cry of hard times we had heard elsewhere; and we found Ferndale, in the center of the dairy industry, a thriving town. Here, for the first time in our California travels, we found broad acres of pasture land that produced white clover in abundance; and surely in the land "where milk flowed and white clover grewed," there the honey ought to flow also.

A little search found the bee and the bee-man. There were several small apiaries of three and four colonies in box hives, but I found Mr. Inman, the bee-keeper of the valley. He had about 60 colonies. His hives were of the box order, with about 12 inches cubical dimensions. The old Harbison 2-lb. section was used

on this hive; and Mr. Inman, in selling his honey in the home market, cut it from the sections and used them over as long as they would hold together, and the most of them were black with age. Mr. Inman was not conceited in relation to his method of management, and desired modern hives and methods, and especially the light 1-lb. section; but considering his style of hive, and the fact that he was well up to 70 years of age, he was doing remarkably well to get 100 lbs. of comb honey to the hive in 1893, and in 1894 the season was off in Humboldt Co., as well as in other portions of the State, and from 50 colonies he obtained only 2500 lbs.

This excellent field of white clover is limited, being an area of only about ten miles square. Outside of this the bees obtain only a small amount of honey, principally from tarweed. Next to owning a large apiary, Mr. Inman seemed ambitious to use up the small apiaries around him. The nearest was only about 200 rods away. Mr. I. said that, when that feller came there, their bees fit like fury; but owing to his bees being very strong, the other fellow was *fit* out of seven colonies.

"Say," said he; "I could fix that feller's bees. Jest make a big swarm in a sugar-hogshead, and they will clean up his whole outfit."

Asking for further information, he explained that, by suspending a small hive of bees inside, near the top of a hogshead, they would increase and increase until they filled the whole hogshead, and they would rob out any apiary within three miles of them; and he claimed he had successfully tried it away back in New Hampshire; "and," said he, "by George, I've a good mind to try it on these upstart fellers around here."

Mr. Inman paid \$350 for his lot, 180x110 ft., and not in a town at that. Land in this valley is held at from \$500 to \$1000 per acre, and rents equally high.

Port Kenyon is the shipping-point from Ferndale. The little steamer Weeott makes regular trips to San Francisco, with butter, cattle, pigs, and merchandise; and, owing to the dangerous symposiums of schoolma'ams over the mountains, I resolved to return to San Francisco by steamer. The ocean was very rough, and had not subsided from the effects of the storms and earthquake, and the steamer lay out over the bar for several days, and finally on Sunday morning came into port.

All day the stevedores worked at unloading, and then loading. While this work was in progress I attended the little United Brethren church in town, and listened profitably to preaching, by a lady evangelist. There were several schoolma'ams present, and a large number of pretty milkmaids; but Bro. Wilder was safe in the warehouse, and the day passed without exciting episodes.

In the morning the captain said he was afraid the sea was too rough for his boat to cross the

bar. We were three miles from the shore, but could distinctly hear the hoarse roar of the breakers. About ten o'clock, however, the word was given for us to get our ponies on board. Our wagon and all its contents was lifted aloft with the hoist and donkey-engine, and gently dropped on board. The ponies clambered over the side on a sort of horse step-ladder. Mr. Wilder, with his past arduous experience on the bosom of the deep in remembrance, faced the bellowing ocean with a courage that was truly commendable.

The captain on the bridge felt his way carefully over the bar; two men at the bow of the steamer heaved the lead, taking soundings. One on the larboard side would shout, "Twelve fathoms, sir;" then from the starboard side would come "Ten fathoms, sir;" then it was 12 fathoms, then 15, then 20, and we were over the bar; but what a plunge our steamer made at 10 fathoms! Our ponies, near the forecastle, lost their feet, and went to the deck. They were up in an instant, and snorted as a breaker curled over the larboard rail and drenched them with salt water; but, once over the bar, the vessel moved steadily onward, only taking those long swells that are so soothing to the voyager.

As I have received so many benefits from Mr. Wilder's deer-hunting by claiming every time that *we* shot the deer, I will here give him the benefit of my expertness as a sailor, and say that *we* were not seasick during this two days' voyage. In San Francisco we transferred our outfit to the river boat, and continued our journey by water up the San Joaquin River to Stockton. Over 300 miles by water refreshed us, and here we were ready again to take to the common highways.

FEEDERS AND FEEDING.

SOME KIND WORDS FOR THE CORNEIL SMOKER.

By Emma Wilson.

About the last of May, as the bees had nothing to do we concluded we would do a little outdoor feeding at the home apiary, although we had thought the feeding finished for this spring. We filled the Miller feeders and piled them up six or eight high, leaving a good space open at the bottom so the bees could get at them. But, although the bees were swarming around them, they did not seem to find the feed, or at least they did not empty the feeders as fast as we expected. We then tried setting the feeders on the ground, one in a place, filling the compartment very loosely with hay, then putting in the sugar and water, leaving the covers off entirely. And, my! but didn't the bees just swarm about those feeders!

Into some of them we put very little sugar—about a pound to five quarts of water—and in others we put five times as much sugar to the

same amount of water. It didn't take the bees long to find out which were the sweetest feeders, and these were quickly emptied, while on those that were sweetened just a little they made very slow work until a little more sugar was sprinkled on, when it was fun to see them hustle. As soon as the feeder was empty we would pour in more cold water and then sprinkle the sugar on without paying any attention to the bees, although the feeders were full of them. We rather thought they would look out for themselves.

We thought we had struck a big thing in the way of feeders, for a dish of any kind could be used; but when we came to take the hay out of the feeders we found a good many dead bees in the bottoms of two or three of them. Just what the trouble was I don't know; but I rather suspect they were drowned when we filled the feeders. If we were doing it again I think we would fill the feeders at night after the bees had stopped flying.

White clover commenced to bloom pretty freely, and we began to put on supers the 29th of May. To be sure, the colonies did not show many signs of harvest; but we concluded from the looks of the clover that it wouldn't be many days before they would be needed; and as we had time then, we would put them on then and not be worried about it. But we would better have left them off; for, although the white clover is fairly abundant, there does not seem to be any nectar in it—at least, our bees are doing nothing at the present date, June 11.

We have fed a ton of granulated sugar since last September, and the prospect is that we shall have to commence feeding again. We have not had rain for weeks, and are suffering severely for want of it. A good rain might help, but I fear we need not expect anything from clover. I am in hopes we may get a little from basswood. Dr. Miller never counts much on basswood; but I believe there may be more of it than he thinks.

We received from Medina one of the new Corneil smokers. The first time we used it, about one of the first things I did was to burn my fingers; and while they were smarting I concluded I didn't like that smoker very well. I had used the Crane smoker with asbestos for so long that I had become rather reckless as to how I handled it. However, I have used the Corneil smoker a good many times since, and have not burned my fingers any more.

One very good feature of the new smoker is that it will burn for so long a time without going out. One morning lately we had a little work to do in the home apiary before starting for the Hastings apiary. I lit the smoker with a few shavings; and as the shavings were almost gone I rolled up a piece of an old hive-quilt, with a good deal of bee-glue on, and put it in the smoker. This must have been about 7 o'clock. We worked for about half an hour at

home, then started for the Hastings apiary, which is about five miles away. When we went to use the smoker after getting there, we found it burning all right. We worked there till about 3 o'clock in the afternoon without refilling or relighting the smoker; and when we were almost home Dr. Miller picked up the smoker and it was still burning all right. I meant to keep watch to see how long it did burn, but forgot all about it after we got home, so "I don't know." Now, I think it was partly the smoker and partly the fuel that kept it burning so long. It is lighter than the Crane, which is another point in its favor. The manner in which the fire-box is fastened on to the bellows makes it stronger and better than any thing we have had before. I have not had a chance to try it with a very hot and long-continued fire such as is used in smoking bees out of sections, but I imagine the Crane, with the asbestos, will then be ahead.

Marengo, Ill.

[I am sorry to know that you have had another poor season, or probably will have, from present indications. I can almost imagine that I see the season with you just as I saw it a year ago.

Using hay or grass over the syrup is a good idea, and not altogether old, I apprehend. A great many times, common pans may be put into the upper story of the hive, filled with syrup, and all that is necessary will be to pick up a good handful of grass and strew it over the surface of the syrup. I assume that, if it would do the work outdoors, it certainly would in the hive, where there would be less scrambling and crowding, resulting in the possible drowning of the bees.

Now with regard to the Corneil smoker. We have been experimenting with this smoker, the Corneil, for over a year; and I might explain that, along last winter, I sent one to Dr. Miller, telling him to test it thoroughly; and in *Stray Straws* for July 1 you will see he indorses it most highly. So you will see the smoker is no experiment; and, indeed, the principle has been tested thoroughly in Canada, and has, I believe, made a good showing on this side.

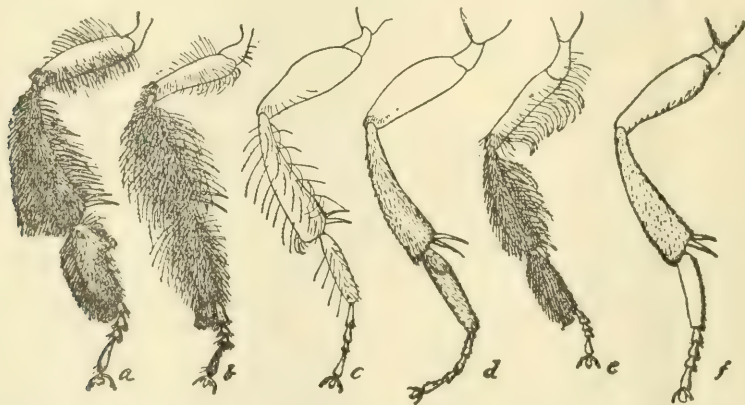
While the Clark is a most excellent implement for the money, we have heretofore had nothing between it and our very best smoker, the Crane. We have therefore devised a modification of the Crane and the Corneil. The method of supplying the blast to the fire-cup is Corneil's. The construction of the nozzle, hinging, legs, and fastening to the bellows, are improvements of the Roots and others, adapted to the Crane smoker and are now incorporated in the new smoker. In appearance the new Corneil resembles greatly the justly popular Crane. But you will observe the double-tube blast arrangement under the fire-cup, and next to the pair of hind legs, instead of the Crane valve. The bellows is not quite so highly finished as that of the Crane; but in another respect, with the exception of the shield, which is plain, and the Corneil blast arrangement, the new smoker is much like the Crane. This smoker will be sold at a medium price, and will meet the want of a very large number who do not care to go into the very best, but still want a little better than the cheapest. Its blast is not quite equal to that of the Crane, especially when crammed with fuel.

Now about the name—"Corneil." We have always, and more especially since his death,

held the name of a prominent Canadian in grateful remembrance. His scholarly ways, his pleasant manners at conventions, his fairness in discussion, have won the respect and admiration of bee-keepers wherever he has been. That man is S. Corneil. Some time ago he showed the advantages of the double direct-blast arrangement when attached to smokers; and while I did not think, and do not now, that it has the strength of the Crane, it goes a long way toward being as strong, and its method of application is very much cheaper. The only thing about the new smoker—that is, Corneil's—is the blast arrangement; but we always like to name a new implement after some good man who has contributed no small part to the vital function of the implement itself. In like manner it has been a pleasure to us to name our swarm-hiver after A. E. Manum, who first devised the tripod arrangement. In a similar way it has given us exceeding pleasure to name one of our recent extractors after Mr. Cowan; and rightly, too, should it be named the Cowan, because it employs the principle that Mr. Cowan first made public. It was a pleasure also to designate what we call our very best smoker a Crane, after that most excellent bee-keeper, lecturer, and scholar, J. E. Crane, who indeed devised its most vital features. In a like manner, also, it is now a pleasure to christen the new smoker after Mr. Corneil. All the men I have mentioned, after whose names we have christened apiarian implements, are and have been bee-keepers of high standing; and it is indeed a pleasure, dear readers, to give deserving honor to whom such honor is surely due.

VARIATIONS IN BEES.

The following is an extract from "Insect Life," published by the U. S. government, and edited by C. V. Riley. By the way, every bee-keeper and fruit-grower should get this periodical, and read it. As it is furnished free by Uncle Sam, there is no excuse for any man remaining in ignorance as to the nature of our insect-enemies, and how to destroy them.



While the different species of the genus *Apis* differ in size, coloration, temperament, and habit, there are comparatively slight variations in structure—a necessary inference for every zoologist. But if we study the other species of the family *Apidae* we shall find every variation, and ob-

tain a very good idea of how the special organs in *Apis* may have been evolved and perfected from simpler organs in other genera. This may be illustrated by a few sketches of some of the more important structures, as, for instance, the polleniferous organs and the wax-producing apparatus. (See Fig. 25.) The figures very well illustrate the fact that the modification of structure and hairy vestiture, which facilitates the collection and transportation of pollen, while exhibited perhaps in the greatest perfection in the hive bee, is nevertheless an evolution from similar structures possessed by other species of social bees, such as the *Meliponæ* and *Bombi*, and still more remotely from such as are possessed by the solitary bees.

In the production of wax, the hive-bee exhibits a lavishness not found in any of the wild bees, not excepting the species of *Trigona* and *Melipona*, which approach it most nearly in social economy. As a result we find that the wax-secreting organs of *Apis* are much larger than in any other wax-producing bees. In *Bombus* they are greatly reduced and otherwise different in structure, resembling, however, very closely those obtaining in *Melipona* and *Trigona*. In the solitary bees, which produce no wax, these specialized structures are entirely wanting. These solitary bees, no matter in what situations or of what material they make their cells, generally store them with honey or pollen, and, after depositing an egg, cap the cell and leave the young larva to care for itself. The habits of the social bumble-bee (*Bombus*) are but a step in advance, as the larvæ are developed in a mass of pollen and honey, in which they form rather imperfect cells. When full grown each spins a silk cocoon which is thickened by a certain amount of wax, which is added by the adult bees. The females labor, and several co-operate in the same nest. In the bottle-bees (*Melipona*) a still further step is seen, as the cells, of a rather dark, unctuous wax, are formed into regular combs, and are somewhat imperfectly hexagonal. They are, however, in single horizontal tiers, separated and supported by

intervening pillars, more like the nests of the social wasps, and the cell is sealed after the egg is laid upon the stored food, just as in the case of solitary bees. The honey is stored in separate flask-like cells, and but one queen is allowed to provide eggs.

HOW TO GET RID OF FOUL BROOD.

THE FOUNDATION PLAN EXPENSIVE; A PLEA
FOR THE PHENOL TREATMENT; DO
QUEENS CARRY THE INFECTION?

By Wm. F. Clarke.

I consider this the most important practical question at present before bee-keepers, and I should like to say a few words in reference to some editorial remarks on the subject in last issue of GLEANINGS, page 527. I hardly think the suggestion that intelligent and progressive bee-keepers offer to furnish foundation, frames, and new hives to owners of foul-broody stocks, is at all likely to be carried into general effect. What a wealthy firm can do in this line is no rule for individuals who are keeping bees on a limited scale. It seems to me that what is necessary in order to secure a riddance of this fell disease is, first, to find some cheap and easy method of cure; secondly, to find an effectual preventive; and, thirdly, to thoroughly disseminate a knowledge of the means of prevention and cure among bee-keepers.

What is now generally known as the McEvoy cure is too costly for general adoption. The expense per colony is about as follows: Two sets of frames, one set of starters, and one set of full sheets of foundation, from \$1.25 to \$1.50. If the suggestion made in GLEANINGS is followed, the cost of a new hive must be added, say \$1, making \$2.50. The work can be satisfactorily done only during the honey-harvest, and consequently it involves a loss of all surplus that season. For this item add \$5, making a total of \$7.50 per colony.

When I started my present apiary, which was certificated by the Foul-brood Inspector as perfectly healthy, I had a bee-keeping neighbor whose apiary consisted of 80 colonies which were known and admitted by him to be foul-broody. The inspector chalked 14 of those hives to be burned, and ordered the remainder treated on the costly method above mentioned. By the time the work was done the apiary was reduced to 40 stocks. This reduction of stocks adds another and a large item to the cost.

GLEANINGS deserves commendation for the full information it has given its readers concerning various methods of drug cure and prevention. It is, I am persuaded, along this line that we are to work out the general salvation from foul brood.

I have been greatly astonished at the failures reported by bee-keepers who have tried the Cheshire recipe; but a long and painful experience has taught me the secret of this general failure. It has resulted from the refusal of the bees to take the medicated syrup. I have not met with one case in which a bee-keeper has reported failure after the bees had taken, stored, and fed upon phenolated syrup. Mr. Cheshire virtually predicted this failure. He said in Vol. II., page 562, of his great work:

"Ligurians refused the food, and succumbed to the disease." * * * "To place the food with added phenol, on the hive, will, however, do nothing in the greater number of cases. If honey be coming in, the bees will not touch it; but open the stocks, remove the brood-combs, and pour the medicated syrup into these cells immediately around and over the brood, and the bees *will use* a curative quantity of phenol." As I read these directions I gathered that the bees *would use* a curative quantity administered in the above manner, even when honey was coming in. But I could not succeed in making them do it. However, I subsequently discovered a couple of wrinkles which I am very anxious to make known, in order that bee-keepers may experiment in view of them. The first is to feed the phenolated syrup at a time when there is absolutely no honey coming in. Take advantage of the period of complete cessation of nectar-yielding, when the bees are ravenous for food, and are like a hungry man who will not be particular to get quail-on-toast, and other epicurian dishes.

The second wrinkle is to take care not to medicate the syrup too strongly with phenol. I overlooked in my first trials this pregnant sentence: " $\frac{5}{100}$ dispatched the bacillus quickly when honey was coming in, and $\frac{7}{50}$ when it was not." I found that, even in a time of scarcity, the bees refused the $\frac{5}{100}$ decoction, and I kept diluting the syrup until they took it freely. I do not wish to "holler until I am out of the wood," and I am not yet prepared to tell fully "what I know" of foul brood; but I do not want to delay until another season at least a partial detail of my experience. The present season is so unfavorable that considerable feeding will have to be done this fall; and I want to say to bee-keepers who know or suspect that they have foul brood, *do your feeding not later than August, and medicate your sugar syrup with phenol anywhere between the $\frac{5}{100}$ and the $\frac{7}{50}$.* It is my firm belief, which it will take a large amount of rebutting evidence to shake, that, if these rules are strictly followed, Cheshire's recipe will cure any case of foul brood that is curable. I believe, too, that the same prescription will be an effectual preventive. The cost of the phenol is a mere bagatelle, and need not be made account of at all.

There is a great deal more I could say on this subject; but "my time is not yet." Longfellow says in his Psalm of Life, "Learn to labor and to wait," which is what I am trying to do. There is only one thing more I feel it necessary to say now, and that is this: I am afraid your confidence in the safety of taking queens out of foul-broody hives, and introducing them into healthy ones, is misplaced. You say a very few cases of queens carrying foul brood from one colony to another have been reported; but there are so many other ways in which it could have been carried that you are inclined to

doubt them all. Surely you have never carefully read Cheshire, Vol. II., pages 547-549, where it is proved to a demonstration, by dissection and microscopic examination of queens, that the *bacilli* have been found both in the ovary and in the egg. In one case, when a half-developed egg was crushed flat, *nine bacilli* were quickly counted. I pray and beseech you not to take any more queens out of foul-broody colonies for the purpose of introducing them to healthy ones. If we are to get rid of this terrible scourge we must run no risks, but, in all cases, "make assurance doubly sure."

Guelph, Ont., July 3.

[If Mr. McEvoy recommends treating colonies during the height of the honey-flow, of course this would make an expense depending upon whether the season was good or not. But my experience has shown that foul brood is much more apt to break out before or after the honey-flow. It is when bees eat their stores clear down that they get to where the diseased germs are. So I think we may say that in most cases, at least, treatment will be administered when there is no honey-flow. But suppose we do treat at this time. As seasons have been uncertain of late, \$5.00 would be a very large estimate of the actual loss. I think, therefore, we should, in the great majority of cases, throw out the \$5.00. I only suggested furnishing a new hive; but the one diseased can be boiled just as well as not. If this is accomplished during odd hours, the estimate you give could not run much above \$1.50 or \$2.00. So the foundation plan is not so very expensive, after all. And we must assume that the treatment by medication must cost something in the way of the drug in the first place; medicating the syrup; feeding, and the cost of the syrup itself. Practically, then, there would be no very great difference.

With regard to the phenol, I personally tried it diluted 500, 1000, 750, and, in fact, all sorts of dilutions; and in nearly every case it would apparently check the disease, but not in a single case do I remember that it *cured* it entirely, *in the long run*; and when we were fussing with phenol, foul brood in the mean while got pretty well scattered over our yard. The economy of the foundation plan rests in the fact that it is an absolute cure; and if every colony is treated at once, before the disease gets a start, the expense can not be very great. And still again, my own experience with phenol was corroborated by that of a number of correspondents from Australia at the time; later on by Prof. Cook and many others.

I feel quite sure that in your own case you will find the phenol is only a temporary relief, and not a cure. But I thoroughly appreciate the point you make—that, *if* we can avoid the expense of foundation, waste of brood, and general interruption to the colony, by any method of medication, we should hail it with delight; and notwithstanding all the reports that I remember to have read seem to be against the phenol, I am still open to conviction.

My advice to owners of large apiaries was meant to be a suggestion, because they can well afford foundation and frames for a couple of hives, free of charge, rather than run the least risk of the disease being transmitted to their own yard. In other words, we can well afford to take a stitch in time, even though that little stitch costs a little something, in order to save nine stitches later on.

With regard to the disease in the ovary of the queen: I would not deny that Cheshire found

spores in the ovaries of queens;* but certainly we never had a case that was transmitted that way when we were experimenting along that line; but of course I would not carry the impression that it is wise to make a practice of taking queens out of diseased colonies and putting them into healthy ones. I would always take the safer course. It is not wise to drive too near the brink, even though we feel *perfectly sure* that we can drive within an inch or two of that brink and not run off.—ED.]

CALIFORNIA ECHOES.

By Rumbler.

One person has found honey a dear article in Riverside, Cal. He stole sixty sections from an apiary, was caught in the act, and the justice put the price of honey right up to \$1.00 per section, \$60.00, or sixty days in jail. The thief is in jail.

When uncapping honey for extracting, fasten a whetstone to the place where you wipe your knife. In wiping over the stone, the knife is kept to a keen edge. I am indebted to Mr. Schaeffle, of Calaveras Co., for a part of this idea. [Good. Paste this in your hat (head).—ED.]

If I have ever said any thing reflecting at all upon the nectar-giving qualities of white sage, I will now take it all back. This year my observation has been where mountains are covered with it, and the bees have gathered tons of the most beautiful honey ever deposited upon the tongues of mortals. White sage is fully equal, if not superior, to either black or purple sage.

I suppose our Eastern friends desire to be kept posted on the length, breadth, and thickness of our honey-yield. It continues discouraging to us. Wild buckwheat, upon which so many depend for the last yield of the season, seems to be withering. It has the appearance of insect-work in the stalk, sapping the life from it. Again I reiterate the remark that our yield will not approach that of 1893.

M. H. Mendleson, of Ventura, does nothing in the management of bees in a small way. He moves his bees to the bean-fields, and his wagon for moving them will carry 100 colonies. With this rig it takes but a short time to surprise the blossoms of a new field with a great force of busy workers. Bro. M. puts the yield of Southern California at half a crop, and advises bee-keepers to hold their honey for 5½ to 6 cts. per pound.

*I am one of those who, though recognizing Cheshire's great work, do not believe that he was infallible in all things. You remember how severely he criticised his cotemporaries for the mistakes they had made. Later developments have shown that he was quite as capable of such sins as they. The man who pulls motes out of his brother's eye is pretty apt to have some tolerably big ones in his own. Hence, while I do not deny his statement here, I can't quite swallow it when real practice seems to be at variance with what he saw or thought he saw in the microscope.—ED.

When John H. Larrabee left his apiary in Vermont to serve the government as an heroic "apistical experimenter," his brother Walter stepped into his shoes as a worthy successor at the home apiary. After a year's service, John left the government position for a higher walk in life, and walked into matrimony. Walter, like all observing bee-keepers, noting the felicitous condition of his brother, has also recently walked into matrimony. Walter and his helpmeet, I believe, stick to the bees and the farm, while John runs a bicycle-factory in Lansing, Michigan. [Good for Walter! The force of habit is strong. Beware, Bro. Rambler.—Ed.]

When Mr. Alpaugh returned to Canada, from his travels in the Golden State, he gave some of his experiences in the *Canadian Bee Journal*; and among other things he said he found a condition in a certain California honey-house that he would not divulge, for it would amuse some Californians, and it might make some mad. Well, I have waited for the secret to come out; and, behold, Bro. Gemmel the tale unfolds before the whole Oxford Bee-keepers' Association, to their evident amusement. Bro. Alpaugh found a skunk in a can of honey—that's all. Why, my Canadian friends, that is a common occurrence. That particular apiary was infested with foul brood, and the owner was making a disinfecting compound to be used in the early spring. "Mephitis mephitica" and honey I would recommend to Inspector McEvoy, or any Canadians afflicted with foul-broody apiaries. It is easily prepared, as Mr. Alpaugh witnessed.

A petition is out for governmental interposition in behalf of *Apis dorsata*. Prof. Benton says it cost not much less than \$1000 for his abortive effort to import the great bee. Of course, Prof. B. does not wish to abort again on his own capital; but it seems to me that, if *Apis dorsata* is worth any thing to bee-keepers, it is a mighty poor national industry that can not land the bee here on its own account. [Are we sure *Apis dorsata* would be of any practical value once introduced? I have the impression from what I have read of them that they are exceedingly hard to domesticate. If such is the case, would it not be better to ask for appropriation in much more needed directions? We need, for instance, an apicultural station under the national government, and Frank Benton would be a good man to conduct it.—Ed.]

"There comes a tenderfoot. Now we shall have some fun," said a bee-keeper to his helper; but when the supposed tenderfoot emerged from the foliage of a gum-tree near the apiary, he was veiled ready for emergencies. "Not much tenderfoot there," said the bee-keeper, "and no fun." This leads me to remark: Why do we laugh with delight to see a fellow-mortal stung by our bees? and the more dignified the unlucky man is, the more intense the laughter. I think the reason is found in the fact that

dignity stands no show before the angry hum of the bee. A reverend gentleman is supposed to be very grave and dignified; but let the sharp persistent hum of half a dozen bees sound close to his ears, and dignity is instantly dethroned. He swings his arms with greater energy than when pounding the pulpit; ducks his head, and, with hat toppling off, plunges into the neighboring bushes, with coat-tails in the air. Perhaps he comes out with an eye swelled shut; but the only sympathy he gets is a laugh and a shout—"Got stung, hey?" A cool, collected bee-keeper, then, should be the most dignified man on earth.



SHAKING BEES FROM OFF THE COMBS.

Question.—I am bothered very much in getting bees off their combs when I wish, for any reason, to change combs with certain colonies, and in extracting. We are told to shake them off, but there must be a peculiar way to shake them; for, shake as hard as I can, I get very few off, and generally make them angry when I try it. Will you please tell us in GLEANINGS how you get bees off their combs when you wish to?

Answer.—In changing combs in the apiary I always shake the bees off, or the majority of them; and with hybrids and the blacks, every bee can be shaken off, providing the combs are built in the frames as they should be, so that they fill the frames full and are in a straight and even line with the frame, thus giving the bees no little holes or open space along between the bottom-bar to the frame and the comb, into which they can crowd in such shape that they can not be dislodged as long as they stay there. After having the combs built out as above, and desiring to take a comb away from the bees, I place the projecting ends of the frame on the ends of the two middle fingers of each hand; and then with a quick upward stroke throw the ends of the frame against the ball or thick part of the hand at the base of the thumb. As the frame strikes the hand, let the hands give a sudden downward motion, which makes the shock still greater. As the frame strikes the fingers it is again thrown back against the hand, and so on till all or nearly all of the bees are off. The principle is, that the bee is on its guard all the while to keep from falling off, thus holding on tenaciously so as not to be easily shaken off by any motion which tends to throw it down. By a sudden stopping of the upward and a quick downward motion, the bees are thrown off their guard and dislodged from the comb in an upward direction. I do not remember of ever having broken a comb by

shaking it as above described, although some claim that they can not shake bees off their combs without breaking the combs more or less. In this way I have no trouble in shaking off black bees and hybrids; and if we disturb the Italians, causing them to fill themselves with honey, they can be shaken from their combs about as easily as black bees. But even if we can not afford to wait until they are filled with honey, four-fifths of them can be shaken off. To get off the remainder, one of the different bee-brushes, now to be had of supply-dealers, will finish the job very quickly; or, instead of the bee-brush, you can use a turkey or goose quill to fully as good advantage by trimming off about one-half of the wide side, so that the feather part will not irritate the bees. Of course, this will appear a little awkward at first, but will soon be found easy enough. In working for extracted honey I used to adopt the same plan to rid the combs of bees, and succeeded very well, although it is much harder work on account of the combs being so heavy. With our perfect escape-boards of the present time, it is not necessary to thus shake the bees from the combs when extracting, for the bee-escape cleans the combs of bees perfectly, and is the thing to use where all the combs in any upper story to any hive are to be removed.

HOW MANY ENTRANCES TO A BEE-HIVE?

Question.—In making hives, how many entrances should be allowed? I am told that, beside the front or main entrance at the bottom of the hive, an entrance should be made at the rear also for ventilation, to be opened during hot weather, and one near the top of the hive to be open at all times when the bees are storing surplus honey, so they need not have to travel so far to carry honey from the entrance to the top of a second or third story hive. What is your opinion in this matter?

Answer.—Regarding the ventilation matter, I much prefer to make the entrance large enough to give all the needed ventilation in times of extreme heat, and have it so arranged that it can be easily contracted to meet the requirements of the smallest colony when desired. My reasons for preferring are that, unless the rear entrance is closed during cool nights, it makes the hive so cold by the draft of air thus caused, that the bees can not work to advantage at comb-building or evaporating nectar; and, worst of all, the bees get a habit of using this ventilator for an entrance, so that, when it is finally closed, the bees which have been accustomed to use this as an entrance to the hive go out at the regular entrance, but return to the old place only to find it closed, thus causing a great commotion and loss, as they know of no other place of getting into their home, having so marked on their first flight. As to the entrance into or near the surplus apartment, any one arguing that such is a necessity shows a lack of thorough knowledge of

the inside workings of the hive. The bees which gather the honey are not the ones which deposit it in the cells, as I have several times proven by taking away a queen of one variety of bees and introducing a queen of another variety. For instance, I once took away the queen of a black colony in June, and noted the time the last black bee hatched, and when the first Italian bee emerged from its cell. As young bees do not gather honey till they are sixteen days old, when the colony is in a normal condition, on the fifteenth day after the first Italians hatched none were seen going in and out at the entrance but black bees, while an examination of the surplus-apartment, in which bees were briskly at work building comb and depositing honey, showed scarcely a black bee there, but all were Italian. And this is only one instance among many which have proved the same thing. Consequently I am opposed to more than one entrance to any hive.

[I sometimes practice your method; but more often I pick the frame up, grasping the projecting end of one end of the top-bar; and, doubling my fist, I strike the top-bar one sharp quick blow at a point where there are no bees. I find I am more successful when I take the bees by surprise; because, the moment they are jarred once, they will hold to the cells tighter than ever. I am also careful not to smoke them much if any before this shaking-off process; otherwise the bees stick their heads into the cells and take a firm grip.—Ed.]



FEEDING BEES SUGAR SYRUP IN THE SPRING.

Allow me to say one word with regard to the management of bees in spring. Some few prominent bee-keepers, with more zeal than wisdom, recommend feeding bees, at this season of the year, large quantities of sugar syrup, so that, when they begin to work on clover, the hives are already full of syrup, and consequently the first, and, in fact, all the clover honey, must go to the surplus-boxes. Now, all this sounds very nice, and possibly some beginners may follow such a course until a little more knowledge on the subject convinces them of the folly of that kind of practice. I will give my reasons why not to do so.

When the surplus-boxes are put on to make room for the queen, the bees will usually move a large part of the stores from the brood-chamber to the surplus-apartments, and thus you see you have an adulterated instead of a pure article for the market. But it has been said that a little sugar won't poison anybody. Very true, it will not. But to do so, will poison your conscience; lower yourself in your own estimation, blast your reputation, and injure the honey-producing interests of the country. The people want a pure article, and will buy it and use it liberally, when convinced of its purity. Every business man, or nearly so, to whom you offer honey, will ask you if it is pure. Now, if there is the least taint of sugar about it you must say so or

He. But if you begin to explain that there may be a little, etc., why, the game is up and you are out, for no respectable dealer will touch it, unless you can vouch for its purity. True, you could make a big report at the close of the honey season; but I am proud to believe that no Canadian bee-keeper would feel very happy over a crooked report, however large, consisting of sugar and honey.

Let us most religiously see to it that Ontario honey shall stand extra No. 1, in the markets of the world. Work hard and make your honey crop as large as possible; but never sacrifice quality for quantity.

Belmont, Ont., May 4.

—S. T. Pettit, in the *American Bee Journal*.

Mr. Boardman, to whom we sent the above extract, replies:

Read carefully on page 345 of GLEANINGS the last part of my article on feeding before the honey season. I believe it is true, and so accepted by all fair-minded bee-keepers—that stores once sealed over in the hive will not be again unsealed during the season unless some extra inducement is brought to bear upon the bees to make them do it. We all know how frequently the extractor has been recommended for this purpose when the queen has been restricted for room. Reversible hives and reversible frames are to induce the bees to unseal and remove their stores. So well established is this fact that I consider it a waste of time to discuss the matter.

H. R. BOARDMAN.

East Townsend, O., June 6.

CELLULOID TABLETS FOR NUMBERING HIVES.

Mr. Root:—I inclose a little piece of celluloid, with the request that you investigate the practicability of using such material for numbering hives. It can be had in any color. White, of course, with black numbers, would be the best for hives. It seems to me it would be a very desirable material for that purpose, as it would not be injured by the sun's rays, nor by moisture. I wish to get numbers for about 100 or 150 hives, and really don't know what to get nor where to get it. To get a painter to paint them on metal would be too expensive; ordinary cardboard might answer, still it would not be very durable. There ought to be quite a sale for such things if they can be furnished at a reasonable price.

G. F. HYDE.

San Diego, Cal., May 26.

[The great trouble with such tablets is, they are too light and expensive. Painted tin ones, as spoken of by Dr. Miller, would be, I think, much better. Dr. Miller, who uses such tablets, and to whom your letter was sent, writes as follows:]

I never thought of the thing before; but I believe Mr. Hyde's suggestion is a good one, to have numbers for hives ready made. One who knows the advantage of it is not likely to have any other plan than to have the number stay always with the stand, the number on the hive changing whenever it changes from one stand

to another. I don't know of any better way than to have tags with numbers on them, so they can easily be changed from one hive to another. But I don't think celluloid is the thing. It is, I think, more expensive than tin, and not so durable. I spoiled some for Emma last winter by having it too near the stove, and I'm afraid the heat of the sun would sometimes be equally great. I think it would pay Mr. Hyde to have some tin tags painted, but I think you can get them up in quantity for less money, and accommodate a good many.

Marango, Ill.

C. C. MILLER.

[We can certainly make the numbered tin or zinc tags—numbering black and tags white, if desired. Perhaps another year we shall list them.—Ed.]

CONDITIONS FAVORABLE FOR SWARMING.

From the 3d to the 10th of June I had 14 swarms from 100 hives of bees. From the 11th to the 29th inclusive I had 7 more swarms. During the first period the bees gathered some honey; but during the second period they gathered it much faster. During the first period the days were hot; but during the second there were many hot days also. But—and here comes a difference—during the first period, not only were the days hot but the nights were unusually warm for any time of the year; while during the second period the nights were noticeably chilly. So my conclusion would be that hot nights with hot days, during a honey-flow, tend to produce what is called the swarming-fever; while cool nights—other conditions being the same—tend to discourage it. This in connection with your second editorial, page 488.

JOHN S. CALLBREATH.

Rock Rift, N. Y., July 1.

[Very likely you are correct. We had those conditions during the time referred to in the editorial.—Ed.]

THE CLOVERS VALUABLE TO BEE-KEEPERS, WHEN SOWN FOR BEE-PASTURAGE.

Mr. Root:—Will you please give a short article on crimson and alsike clover? I should like to know when to sow them, and also their value as bee-plants.

D. P. REAVIS.

Francisco, Ind., May 30.

[Alsike, medium red clover, and all the clovers commonly used in farming, are usually sown on grain in the spring. This whole matter is so well known that we need not take space for it here. Crimson clover is something new; and it has been clearly proven in many localities, even as far north as we are here in Ohio, that it may be sown, say at about the time corn is cultivated for the last time, in the corn, and will then take root, and come up and get sufficiently established to withstand the winter, blossoming some time in May, a little before white clover or any other clover comes out, if I am correct. During the coming fall this matter will be tested sufficiently to settle the question as to just how much crimson clover will do in furnishing feed, bee pasturage, or clover to plow under.—Ed.]

THE PROPER WEIGHT FOR BICYCLES; GEAR, TIRES, ETC.

Friend Root:—There are two questions I want to ask you that I am anxious to know. 1. What is the weight of the wheel that you use in your trips about the country? 2. What is the gear of your wheel, and what gear would you advise for all kinds of roads? Mrs. T., as well as myself, is an enthusiastic wheeler as well as bee-keeper, and we are no "spring chickens" either. Another thing, why doesn't somebody write a little book, to sell for about a dime, on the care of the wheel—how to repair it, adjust it, and fix the different makes of tires, etc.? In my opinion, A. I. Root would be the man. Had I had such a book at first it would have saved us a great deal of annoyance as well as some money.

M. F. TATMAN.

Rossville, Kan., July 3.

[If a person is an experienced rider—that is, has had at least one season's experience in riding, so that he feels measurably at home—a 22-lb. road wheel is about right. If he is a learner, a 25, 27, or 30 lb. wheel—perhaps the last weight—would be better for him. It is usually best for the beginner to purchase a second-hand wheel weighing about 30 lbs.; and these he can get very cheaply now, because the more experienced riders are now all crazy for the light ones. A. I. Root is now riding an 18-lb. Rambler, 1 $\frac{1}{2}$ racing tires, and geared to 68 inches. He weighs about 125 lbs., normally, but this wheel seems to be a little too light for him; for he has broken out several times some of the fine cobweb spokes, and has buckled his frame a little. The latter has not hurt its riding qualities, and the spokes have been replaced at slight expense. As a general thing, however, I think it would be better for the average experienced wheelman to ride something a little heavier—about 22 lbs. seems to be now about the accepted weight; and, if indications are correct, riding weights will not run much under this next year. The 22-lb. is what I am riding myself—a Monarch, which I prefer to a Rambler. I have not had the least trouble with it, and often carry my boy on the handle-bar in what is called a "Kozy" child's seat. Our combined weight is about 180 lbs.; and yet as I ride carefully ten or eleven miles an hour I have no fears but that my bicycle is amply strong. My machine, as well as my father's, is geared to 68 inches. This is none too high for a light-weight wheel such as 20 and 22 lbs. When wheels weighed 40 or 45 lbs., 56 and even 60 gear was high enough.

I see there is a good deal of effort made now to get a changeable gear—one that may, by a "flip of the fingers" at the saddle or handle-bars, be changed to a high or low gear. Possibly I may be mistaken, but I would not give a cent for any of them. With my 68 and 70 gears that I have tried, I think I have climbed all the hills that I ever did on my lower gears. Early last year I rode a Victor with 63 gear, climbed all the hills with it, and later in the season I put on 70 gear and rode up the same hills. The point is right here: With the higher gears the rider has more time to push the pedal down. With lower gears he has to keep chasing the pedal. Under such circumstances, especially in high speeds, it is not possible to exert the full amount of power on the pedal. Both theoretically and practically, then, I prefer a gear not lower than 68. But I would add a proviso that the wheel should not weigh more

than 30 lbs. I have not tried a 76 or 80 gear, but I should not be surprised if I should find comfort in using them also, because there is less kicking in the air, no chasing of pedals, but a slow, easy, graceful motion, instead of a wabbling, quick-kicking, pedal-chasing, so characteristic of the lower gears.

Although you do not ask it, perhaps a word in regard to tires may not come amiss. I prefer a single-tube semi-roadster—that is, without removable inner tube. They hold air better, and it is now possible to repair them. A couple of years ago we did not know how; but now that that question is solved, single-tube tires, in my estimation, are far preferable.

As to size of tire, while I once, with all the rest, thought 1 $\frac{1}{2}$ and 2 inches were the most comfortable for the road, the 1 $\frac{1}{2}$ semi-roadsters that I ride are just as comfortable; and instead of weighing 6 or 7 lbs. per pair, they register only 3 lbs. A. I. R. is riding a 1 $\frac{1}{2}$ double tube; and while he is not particular whether it be single or double, he says 1 $\frac{1}{2}$ is plenty large for him.

You suggest the wisdom of writing a little book; but so rapid has been the change in the subject of cycling, such a book would be out of date in six months; and so we must turn to the manufacturer's catalogs, and to the special journals that are issued. The *Bicycling World*, published at Boston, Mass., is one of the very best. The price is \$1.00 a year, weekly.

There, you can see that bicycling is one of my hobbies. It is almost impossible for me to stop here. But I remember that I am talking to bee-keepers mainly and wheelmen secondarily, and so I will stop right here.—Ed.]



W. D., Ky.—To get rid of the small ants, find their nest if possible. Make a hole through the center of the nest with a crowbar, and pour in about half an ounce of bisulphide of carbon, which you can get at your drugstore. Quickly cover the hole, and it will destroy the nest, ants and all, but it will not kill vegetation. If you can not find the nest, put a little molasses on a board, poisoned with strychnine, or some other poison. Put this in a place where only the ants themselves can get at the sweet. This will kill them as they make their visits; but, of course, the better way is to get at their nests.

G. L. V., Mass.—The subject of artificial incubation of queen-cells is very old. Under the heading of "Lamp Nursery," in the old editions of our A B C book, away back in 1878 and '9, there are full particulars on this subject; but there are very few queen-breeders, if any, who now use artificial heat for hatching cells. What are known as hatchers—a series of queen-cages put down between the frames, or on top of them, over a powerful colony—is preferred. These little cages contain a single cell; and the heat arising from the cluster is sufficient to hatch them. Of course, the natural heat of the colony is far superior, more regular, and better in every way, than any thing that can be supplied by artificial means.



DR. MILLER's slang—just see how he goes for the editor, in Straws! and then observe how he sins himself in the same way, in the next few Straws!

PERHAPS it is a little early, but not very much honey, even from basswood, is being reported. We have had a fairly good flow, and hope others have fared as well as we.

You will see by Straws that Dr. Miller thinks the hive discussion should be continued as long as it brings out valuable facts as it now seems to be doing. I really do not wish to continue the subject if there is not a call for it, and simply ask. Do others feel about it as Dr. Miller does? GLEANINGS is yours, and ready, I hope, to dish up for you whatever you like best, providing it is good and wholesome.

SHALL the Bee-keepers' Union be consolidated with the North American? is a question that is now and should be thoroughly discussed preparatory to the next meeting of the latter at Toronto. It is being advocated by the *American Bee Journal* and the *Bee-keepers' Review*. So far as I can at present see, GLEANINGS is also in favor of the scheme. Bro. York thinks it would give us a membership of 500 or 1000, and a fund from both treasuries of \$800; and then, as he pertinently remarks, "we could petition Congress or State legislatures, in such a way that they would hear and—grant." You are quite right, Bro. York. Of course, the consolidation would not affect the workings of the Union.

WE have printed some 52,000 copies of the A B C book heretofore, without a scrap of advertising. In the present edition, or the one about to be launched forth, we propose to break over our rule and allow a certain amount of select advertising from queen-breeders, supply-dealers, honey-merchants, and, in fact, anybody reliable, desiring space at the end of the book. The A B C goes to a very desirable class of customers—beginners—who would see the advertising cards on its pages when they might not see them elsewhere. The space will be charged for at the same rate as for one insertion in GLEANINGS. Copy must be sent in before August 1, when the forms will be closed. The next edition comprises 10,000 copies. A few copies have been sent out to supply pressing and immediate orders.

BEE-PARALYSIS INHERITED FROM THE QUEEN; DUTY OF QUEEN-BREEDERS, AGAIN.

A CORRESPONDENT writes that he purchased a queen last year of a queen-breeder, and that

the bees of this queen subsequently developed bee-paralysis. In the mean time he had raised nine queens from this mother, and the bees of all these nine queens showed the same disease. This, I firmly believe, is only one of many cases, and goes to show that the disease is inherited from the queen. How careful, then, all queen-breeders should be that bee-paralysis is entirely exterminated from their yards! Some of the friends thought that my calling for a "show of hands" of all queen-breeders who would destroy every case of paralysis in their yards, as soon as discovered, was a measure both extreme and unnecessary. It may be in the case of those who do not sell queens; but it certainly is not for the breeder.

THE HOME OF THE HONEY-BEES ENLARGED AGAIN.

ONCE more the Home of the Honey-bees is to receive a substantial enlargement in order to enable it to turn out more goods. Another story is being added to our wood-working building, and new machinery is being put in, so we hope to nearly double our present capacity for turning out hives and sections. We have already ordered another large engine, which all told will give us a total horsepower of about 200. New and larger exhaust dust-fans and dust-separators have been found necessary in order to keep pace with the unprecedented demand for our new polished and sanded sections. Later on we will show you how we look with the recent additions.

DEATH OF A PROMINENT SUPPLY-MAN.

I REGRET to chronicle the death of Chas. E. Parks, which took place at his home in Watertown, Wis., on the morning of July 1. He was a member of the firm of the G. B. Lewis Co., of that place. He was intelligent, progressive, and, with his other accomplishments of push and business sagacity, an inventor. He was, I believe, the largest stockholder in the company, and the man who invented the machinery now in use by that firm, for making sections, and also for what is known as the Parks basket-crate—a sort of shipping-basket or box that is used largely for a great variety of purposes. It was he also who demonstrated, if I am correct, the possibility of making the present one-piece sections in quantities. Although not the original inventor, he brought the section before the public. Mr. Parks was personally known to the writer, who has had several pleasant talks with him at conventions and elsewhere. When I last saw him he looked the very picture of health and strength; and it was a great surprise to me when I learned a few months ago that he was lying dangerously ill in Florida—notice of which I gave at the time in these pages. He leaves a wife (daughter of G. B. Lewis) and three children.

The affairs of the G. B. Lewis Co. will be con-

tinued as formerly, and will be managed, probably, by G. B. Lewis and his sons.

CRIMSON CLOVER AS A HONEY-PLANT.

□ WE clip the following from a recent issue of the *Farm and Fireside*:

Crimson clover, sown the middle of August on the writer's experiment plot, commenced blooming the first of May and ripened its seed early in June. For four weeks the honey-bees hummed joyously over its beautiful blossoms. Wherever it can be grown, crimson clover is a honey-plant of great value. It is the first of all the clovers to bloom. Where the bee-keeper has white clover or alsike clover, he can add one month, at least, to the length of the honey harvest by a field of crimson clover.

I could not make out from the paper either date or locality; but the paper is published at Springfield, O.

NUMBER-TAGS FOR HIVES.

IN another column Dr. Miller inquires regarding the cost of tin tags, numbered, to put on hives. In our last issue this form of tag seemed perhaps the most feasible; but since that time I have called to mind how queen-nursery cards, of which we used to sell a good many (a card of ordinary cardboard manilla, having certain printed matter on its face), have stood the test of year after year of weather; and I have been wondering if a tag-board manilla would not be far better—or at least as good, and far cheaper. We know that paint does not stick readily to tin. In four or five years it will either rub or flake off, and the tin will turn to a dead, rusty brown, leaving the figures in black in poor and indistinct contrast. Manilla tags, something like what are used on express packages, when neatly tacked upon the hive, and printed with a bold-faced type, with common printers' ink, will stand the weather, and outlast the painted tin tags. □ It is possible that it might be advisable to treat such tags, after being printed, to a solution of oil, but I hardly think it necessary. Well, such tags can be gotten up for one-fourth or even a fifth of what ordinary tin tags would cost; they would last as long, or longer, and could be easily duplicated, when necessary, at a slight cost.

GLEANINGS UNPREJUDICED.

IF there is any one thing that the editor of GLEANINGS is trying to do, especially since, as publishers, we are interested in a large supply business, it is to select fairly, impartially, and honestly, matter that shall give an unprejudiced view of bee-keeping. It is easy and natural for a trade-journal to be prejudiced toward its own business; and while, perhaps, we may possibly have been *unconsciously* guilty in this respect, we strive earnestly to give every side a fair hearing. The whole bee-keeping world seems to have settled down, in the United States at least, on the idea that the

Langstroth hive is about right; but here come along some very prominent, influential, and expert bee-keepers, giving some solid arguments in favor of a deeper or cubical hive. It is with pleasure that I give you the benefit of their opinions in this issue. Should these opinions prevail, and carry that bee-keeping world with them, it would make a howl among supply-dealers. While we might "howl" with the rest, we propose to let the truth come out.

Again, I have tried to, and propose to let the advocates of the double brood-chamber give their honest opinions concerning the merit of that form of hive. And, still again, I propose to let the ten and twelve frame folks advocate *their* ideas. While I do not think it would be wise to continue this discussion indefinitely, enough has been said to call out more, and to lead us nearer to the goal that we are all seeking—the kind and shape of hive that will give us the most honey or money with a minimum of labor.

FOUL-BROOD INFECTION FROM COMBS; AN AGGRAVATING CASE.

A PROMINENT bee-keeper, whose name I do not mention for fear he would not desire to have the facts made public, writes that one of his out-yards is badly affected with foul brood. It seems he purchased some combs of a party who lived at some distance. These combs were shipped in open hive-bodies, with only slats nailed over the top. They arrived at the station on Saturday night, and unfortunately the out-yard in question of our friend was within a short distance of the freight-house. Of course, it was not bee-proof, and a window was broken out. Our friend being entirely ignorant of their arrival, the bees on Sunday had a regular "pow-wow" over those combs, because they were dripping with honey; and the agent, arriving, threw the freight-house doors wide open to "let the bees out." Of course, this made matters ten times worse. He sent notice to the owner of the out-yard, but it seems he did not receive it—or, at least, not until the next Monday morning, when all the mischief had been done. At that time he repaired hastily to the scene, examined the combs, and found them to be badly affected with foul brood. Well, in just three weeks' time the disease manifested itself in various quarters of the apiary, just as we should expect it to do. Our friend managed to keep it down somewhat by cutting out diseased cells as fast as they appeared, as he did not wish to resort to the heroic treatment of destroying all combs, brood and all, until after the harvest. This procedure, it seems, kept the disease under control, but it kept breaking out elsewhere. His plan is now to put all the diseased colonies in an isolated location, and prune the diseased brood out, or destroy entirely the combs badly affected.

The combs which were shipped in open hive-bodies in the first place, and which gave rise to foul brood in an apiary that was perfectly healthy previously, should at least have been examined before being shipped. I will assume that the party who sent them was ignorant of the presence of foul brood in them; but, ignorant or not, it seems to me he should be prosecuted to the full extent of the law, to teach him a lesson; at all events, I think it would be wise for any one who buys combs to examine them carefully before using them. If they come from an apiary whose owner is slipshod in his methods I would not take them at any price, especially if foul brood had been in the vicinity, or was likely to be. It seems that the party who shipped the combs to our bee-keeping friend in the first place was warned to be very careful. In view of that warning, the fullest penalty of the law is none too good for him.

The bee-keeper having just acquired the disease in his out-apiary asks what we think of his methods of procedure—cutting out diseased spots in the combs; of entirely destroying such as were badly affected; and finally of isolating all cases so treated, in a location by themselves. The plan is all right; but to be on the safe side I would see that all such honey, and, in fact, any of the honey coming from that yard, even though the colonies from which it was taken appear to be perfectly healthy, be boiled, or at least be kept at a temperature of 180 degrees for two or three hours. We always want, for safety's sake, to assume that the honey that has been extracted from colonies in the vicinity of foul brood may contain the germs of the disease. If it is put on sale at the market there is quite a liability that bees in the vicinity will get a few sips at it, and then away goes the contagion in a new locality.

With regard to cutting out diseased spots from the combs containing here and there a little infection, this may be all right as a temporary expedient; but I have rather the impression, from reports received, that the disease is quite liable to reappear in such colonies. I see no reason why it should not. To make a sure thing of 'it, I think putting the bees into clean hives, or one that has been thoroughly boiled, on frames of foundation, and compelling them to draw some of the foundation out before feeding, is the only real safe way. If there are only two or three colonies in the yard so affected, they should be all so treated; but when the disease gets such a fearful headway, and honey is coming in, perhaps the temporary expedient of cutting out the diseased spots would do during the honey-flow; and after that time I would certainly extract all the honey after the brood-rearing had ceased, or largely so; give them frames of foundation, and feed the honey back; or, better yet, after it has been boiled; or, better yet, clean syrup. I am not

satisfied that medicating it with any sort of drug is an advantage or may be.

THE FIVE-BANDED BEES.

DEDICATED TO DR. MILLER

By J. H. Markley.

(Lib.—Branigan's Pup.)

Old Mr. Doolittle had some fine bees,
A cross from the very best strains;
For seventeen years he had bred them with care,
And spared neither money nor pains.
They had the least bit of a stump for a sting,
And yet had a very long tongue;
Large bodies, strong legs, and very large wings,
They went to the field very young.

Chorus after each verse:

Buzz-a-buzz-buzz what wonderful bees!
For beauty they surely would please,
There never was known such workers before,
As Doolittle's five-banded bees.

They worked on red clover with perfect success;
Were busy from morning till night;
They made lots of surplus when other bees
starved;
Their debut was hailed with delight.
Their queens were prolific—remarkably so—
Laid eggs with wonderful haste;
For beauty no other queens could excel—
Wore five bands of gold round their waist.

Chorus:

They found their way to the Home of the Bees,
To show that they were just the thing;
When Ernest got after them with a sharp stick—
He said, "The five-banders will sting."
He said that, as workers, they didn't excel;
Their "gold plate" was not worth a pin,
They winter-killed worse than the "leather-
backed" strains;
Now, wasn't that truly a sin.

Chorus:

Bee-keepers turned over to Ernest one day,
And each of some point would complain;
And thus did the people with wonderful thud
Sit down on the five-banded strain.
Some said they were lazy; some said they were
cross,
And some e'en their beauty decried,
They died off in winter, they dwindled in spring,
And thus the poor five-banders died!

Chorus:—

Carbondale, Kan.

[I am sorry I can't rhyme in my answer to you; but my "sharp stick," I think, never got after Doolittle's five-banders. His strains (and I saw them in his own yard) were not cross. They appeared to be good breeders; and that they were good workers I had no reason to doubt. I did not criticise Doolittle's strain or that of any one else who bred them carefully from *purely Italian stock*; but the *tendency* of some who turn their sole attention to *color*. A strictly five-banded colony is rare, and hard to get, even if we eliminate all other desirable qualities out of account; and in order to fill orders according to color and marking, every thing else was apt to be lost sight of. The mere fact that reports from all quarters showed that the craze for color was giving us bees cross and short-lived (that is, poor winterers), shows that there was good ground for my protest. I do not object to color if we do not sacrifice other qualities that go to make up the bread-and-butter side of bee-keeping.—ED.]

OUR HOMES.

Know ye not that ye are the temple of God, and that the Spirit of God dwelleth in you?—I. Cor. 3:16.

Saturday morning, June 29, news reached me that a near and dear relative was very low with malarial typhoid fever. As her home was not over forty miles away I started off on my wheel. When a little more than half way there I stopped with another relative, a brother of the sick one; and in talking the matter over in regard to these fevers that are so apt to occur at this season of the year, my attention was turned to a matter of vital importance to the homes of our people—the water we drink. Let me go back a little.

Forty years ago our nearest neighbor in the town of Mogadore, Summit Co., O., lost a child by typhoid fever. My mother went over and helped to take care of the child. Shortly after its death she was taken down and had a long siege; in fact, she just escaped with her life. Before she recovered, a sister, very near my own age, was also stricken down; but the physicians, with great care and labor, managed to prevent the malady from going any further. It was then nearly springtime. The first case of the fever started in July or August, and it ran in that neighborhood for more than half a year after. Well, my uncle told me there was typhoid fever in that neighborhood now; and the Mogadore physician said they had typhoid malarial fevers in that locality almost every year. A year or two ago he became convinced that the water they drank from a certain spring was at the bottom of the trouble; and he gave strict orders that no water should be used for drinking—purposes from that particular spring. Some friends came from a distance to take care of one of the patients; but the doctor told them the same—they must not drink any water from that spring. Well, all of the family and all of the neighborhood obeyed the doctor's commands except one young woman who laughed at his caution, and said she would drink all the spring water she pleased. She alone was stricken down with typhoid fever. Those who heeded the doctor's orders escaped. This spring is right close to what was my boyhood home. I have drank from it hundreds of times, and know all about it. It is at the foot of a hill on the edge of a mucky swamp. The water boils up from the sandy bottom. If you dip out a painful, however, before the spring is full again, surface water from the mucky swamp may run in, as well as spring water from the bottom. Not more than two rods from the spring there used to be an old stable; a little further away, a slaughter-house. Is it any thing strange that, when the spring should be dipped dry, may be several times a day—say on washing-day—that the surface-water from that nasty swamp should mix in with the pure water? And, by the way, typhoid malarial fevers almost always begin to appear when the wells are pretty nearly dry. The State of Michigan made some extensive experiments along this line some years ago, and gave us some carefully prepared statistics that seemed to indicate very plainly that low water in wells must have some connection with the prevalence of fevers in the locality. Well, after we had talked this matter over, and each one present had furnished more or less facts—facts all pointing in one direction—I began to ask questions in regard to the drinking-water, etc., where our relative was now prostrated with fever. I was told they had an excellent well of water; but, like many other wells at this season of the year, the water was very low. Furthermore, in building

an addition to their home a year or two ago, they built directly over the cistern; and the sleeping-room had been located in this new addition, almost *directly* over the cistern. I at once questioned about the state of the water in the cistern. Being covered up so closely it smelled very bad; and our sick relative had said, just before she was taken sick, that she was going to have that cistern cleaned out and filled up, and a new one made out in the open air. I stepped on my wheel, and in a little more than an hour I was at the bedside of my friend and relative. While attending school in early life my home had been with this aunt; and a strong friendship had always existed between us, especially after I decided to make her God my God, and her people my people.

I found the doctor with many of my relatives consulting as to what could be done for the loved one. Their old family physician was absent on a visit, and a young doctor was called in from a neighboring town. I told him I wanted to meddle a little. When I explained that it was about the cistern and the drinking-water, he said I was exactly the man he wanted to find. The case had puzzled him ever since he took it up. In the early stages my aunt was delirious. She would get up in the night, before they knew she was very sick, and she was once found on the floor, in a faint. Unless constantly watched she would get up, and insist that she was not sick at all, and that the watchers and doctor could go home. He said he felt sure there was a reason for the peculiar symptoms of both members of the household. Some of the cistern water was pumped. None of it had been used for drinking—purposes, but it was too bad to wash even one's hands and face with. Furthermore, this cistern had at different times overflowed and got into an unused cellar; and this unused cellar was shut up close. Now, their well, where all their drinking-water came from, was not *twenty feet away*, in a porous, sandy, and gravelly soil, from this closed-up cistern and cellar. The patient was calling often for a drink of cold water right from the well. My uncle urged that there could be nothing the matter with the well water, because it was so beautiful to look at, and so pure to taste. When I told him the germs of fever might exist when neither taste nor smell nor *looks* would indicate it, he became greatly surprised. The doctor backed me up most vehemently, and said something as follows:

"Dear friends, the latest developments in the way of typhoid fever indicate most clearly that it is not contagious unless one drinks the water the sick ones have been in the habit of drinking."

Somebody suggested that there might be danger in using it for cooking.

"No, my friends," continued the doctor, "providing the water used for cooking be boiled, it seems to be perfectly safe. And rather than run any risk, if you have any reason to suspect the drinking-water, it should be boiled before using it. We are making great progress in this very matter of the cause of fevers, and the whole evidence seems just now to point to an astonishing degree, toward the fact that the water we drink—especially the cold water right from the wells or cisterns, is the main cause of these terrible fevers."

Now, friends, it did me a lot of good to have a good talk with that bright young doctor. He was full of life and energy, and full of love for humanity; and he assured me that one of the great obstacles in the way of getting rid of these malarial fevers was to get people to have faith in the doctor, and to believe he *knows* his own business.

So much for looking out for the bodily comfort and safety of my sick relative. At the time of my visit she had regained consciousness, and the doctor said the symptoms had changed unexpectedly for the better. She knew me, and expressed much pleasure in seeing her "boy" once more, for I used to be "her boy" in my schooldays. She expressed some surprise to see so many relatives coming, and, stranger still, because she was not, as she said, very sick. As it was evidently a task for her to hold on to any thread of thought for any length of time, I talked with her briefly at intervals. I very soon found out that death had no terrors for her, for her hope was in Him who has passed *through* death, that he might lead us and take us safely through the dark valley to the immortal shore beyond. I sang to her a verse of that old hymn—

How sweet the name of Jesus sounds
In a believer's ear!
It soothes his sorrows, heals his wounds,
And drives away his fear.

Then I talked to her about the helplessness of doctors and friends, but of the mighty power of the great Father who has promised to be with us in times like that. Fearing that she was becoming wearied I made some haste to bid her good-by, promising to pray for her. Before I had mounted my wheel again, *another* sister came to tell me what my aunt had said after I had gone out. It was something like this:

"Were you here when we had that sweet little meeting?"

When the listener assented, she replied:

"Oh, it did me so much good!"

I felt almost sorry I had not talked with her longer; but the doctor said, and I too felt sure, that her recovery depended greatly upon quiet and rest. He said he feared a return of her delirium; and any little excitement, especially any undue exertion of the brain, might prove fatal. Now, the particular point in this talk to-day, dear friends, is this: The season of the year is upon us when we may expect fevers. The condition of the rainfall where most of you live is such that your wells may be low. For the sake of your dear ones, for humanity's sake, and I think I may say for Christ's sake, do be careful, and look to it in regard to your drinking-water. If I am correct, people many times suffer greatly from the effects of bad drinking-water, even if they do not come down with a fever. The tired and overworked mother, the weary hands from the harvest-field, and, in fact, any and all of the inmates of our homes, may have headaches, a feverish feeling, exhaustion, and nervousness, to contend with that they need *not* have at all were these matters duly attended to. For a long time I have disliked the taste of the water from our cistern, even though we have a slate roof, and the best cistern we know how to make, with a filter for the water to run through. A few weeks ago we pulled out the chain pump and wooden tubing. This old wooden tubing was water-soaked and partly rotten; and just as soon as it was out of the way, that objectionable taste disappeared. We now have a water-drawer that takes air clear to the bottom of the cistern every time the pump is worked. If you have any reason to fear the water is not just right, and that you can not get water from any other source conveniently, boil the water before any of you drink a drop of it. I have not space here at this time to speak about the water furnished to the cows that give the milk; but I will just add that, in a neighboring county, a number of cases of diphtheria were traced almost unmistakably to the visits of the milkman; and our health officers are now demanding that he who sells milk shall furnish just as

good water for his cows to drink as he would furnish for his own family.

I felt as if it would be best for me to make my stay a brief one, and so I took my wheel again. May be the work I had done made me feel happy; and perhaps being free from care, and riding through a beautiful part of the country, also made me feel happy. And, by the way, it seems to me I never before saw so many pretty gardens as I passed that afternoon through Summit and Portage Counties. The gravelly hills especially seemed to be recognized and appropriated. Fruit and berries were plentiful everywhere. Why, in one place I saw potato-tops higher than the picket fence, and in the month of June too, and after that terrible frost just back in the month of May. Now, lest you accuse me of telling great yarns right here in one of my spiritual talks I will explain that the gravelly hillside where those potatoes grew had been cut into along the road, so the picket fence was on lower ground than where the potatoes grew. Yes, and people were digging new potatoes almost if not quite the size of hens' eggs. When I asked if it were possible that they grew after the frost, I was told they hoed the dirt over the tops and covered them up till the blizzard passed by. This was some trouble, but it gave them new potatoes of their own growing when they were retailing at 40 cts. a peck at the corner grocery. Why, it paid, and paid big, for all the time and trouble. But I must remember my gardening talks come in another department. For some reason, as I was telling you, a wonderful thrill of peace and happiness and joy came into my heart during my ride about sundown from Randolph to Springfield. The road was sandy, and made the wheeling difficult; yet by going along the foot-paths that had been trodden by the bare-footed children I made very good speed. In one of these foot-paths that ran up over the bank quite a little higher than the road, my pedal struck the hard ground at the side of the path, and I went over down the bank almost as suddenly and unexpectedly as if somebody had hit me with a club. I was a little bruised, it is true, and my clothes were somewhat soiled; but almost before the bruised spots had got done hurting I burst out into expressions of thanksgiving and praise that I had been hurt no worse, and that it was my privilege to live in such a beautiful world, and to visit so many pleasant and happy homes. Yes, and may be I could help a little to make them pleasanter and happier still—who knows?

As my home was nearly 30 miles away, and it was between sunset and dark, I decided to pass the Sabbath *away* from home.

Next morning at the usual time I was sitting in the same old Methodist church where I used to attend Sunday-school just 45 years before. The superintendent was absent, and the minister was away, so they called on me to give them a little talk at the close of the exercises. I told the children who I was, and pointed out to them the seat where I used to sit when I was only ten years old. Then I told them of one particular Sabbath when I repeated *forty* verses from the Testament, and how one of my classmates cried because the teacher told him there was not time for him to say his *eighty* verses. You see, they had just started a new plan. For every ten verses we got a blue ticket; for every ten blue tickets we had a reward-ticket; and for every ten reward-tickets we were to have a little book. I think the little book I got for committing to memory 1000 verses is somewhere in the family now. I told that little Sunday-school I would not repeat *all* of those forty verses then and there that I committed to memory 45 years before; but I

said I would give them two or three verses that I verily believe had lodged in my memory away back in earlier years, and have held their place there ever since. In fact, I do not know but they are framed and hung in that little picture-gallery I told you about in our last issue; and, oh what nice little verses they are to be engraved on the tablet of the heart—especially little hearts!

"But I say unto you which hear, Love your enemies; do good to them that hate you; bless them that curse you, and pray for them which despitefully use you.

After Sunday-school was out we drove around past that spring that had been the cause of so many cases of typhoid fever. It was walled up, and there did not seem to be any outlet to it—at least, not a very complete one. And this suggests an important matter. A spring or well, to be wholesome, should have some method of letting the water run away in a continuous stream, or of removing the water daily. The stream down by Champion Brook runs a steady stream except during a very severe drouth. Just as soon as it stops flowing over the top of the iron pipe which surrounds it, the water becomes stagnant, and unfit for drinking. Last season, when the boys told me they could not drink the water, I made an opening in the iron pipe, a foot lower down. Then it began to flow as before, and the water was cool and nice. Of course, we can not have a running stream from a well; but most wells furnish very much better water if there is a constant removal of the water. Sometimes watering the horses or other farm stock will very much improve the drinking-water of a well, especially where the water comes out of a rock. But the greatest care should be taken to prevent surface-water from seeping in during a dry time. Large-sized sewer-pipe set down into the rock, the joints made water-tight by cement, is perhaps the nicest arrangement that can be made; but I believe that, taking the wells as we find them, water from a good cistern, with slate roof on the buildings, is very much safer as a preventive of fevers.

In the afternoon I attended a funeral. The deceased was a prominent man in the vicinity, and I met great numbers of my old friends—many of them whom I had not seen for between forty and fifty years. Now, I do not know that I ever enjoy attending a funeral; but I did feel very happy at that funeral that Sunday afternoon. Although the house was crowded, I found a place near an open window where I could hear distinctly every word uttered by the gray-headed clergyman. Most of the friends of my boyhood had grown gray-headed during the lapse of time, and many wrinkles furrowed the faces of those who were boys and girls in my schooldays; but, notwithstanding, they were good-looking still, for they were for the most part progressive, intelligent people. Now, friends, if we live right, if we take care of these bodies right, we may be happy on Sunday, and we may be happy week days. We may be happy when we are old and gray and wrinkled; yes, we may be happy and joyous, even when we attend a funeral. By the way, I want to speak of the hymns that were sung. It seems to me I never heard any grander sacred music than we had there. There was one deep bass voice that had a depth of volume, and softness and flexibility (if our musical friends will not criticise my expressions), that stirred wonderfully the emotional part of my nature. I asked somebody, after the service was over, who it was.

"Why, that was Captain Clemmer."

"John Clemmer?"

"Yes," was the reply, "John Clemmer."

"Why," said I, "he was a celebrated singer fifty years ago."

And it is true. When he was twenty he could sing so as to move the hearts of men; and now at seventy he had this wonderful gift still; and may God grant that he is still using this gift as a power to bring men out of despondency and darkness into the bright light of faith and hope in Christ Jesus.



IRRIGATING FORTY ACRES OF CELERY.

Next morning, after the events narrated above, I was up and dressed and on my wheel at 15 minutes past 3. May be some of you do not know that it is light enough to see, the first day of July, at such an early hour; but so I found it. I begged permission of my relatives to get up in this way without disturbing any of them. My ride was along near Springfield Lake, in Summit Co. The valleys between those great gravelly hills were so full of fog that they also looked like lakes. At just 5 o'clock I rode into the beautiful city of Akron. It was not quite breakfast time, to be sure; but I was quite ready for breakfast. I asked the night policeman if he could tell me where to find a lunch at that early hour. He said at first it was somewhat of a question; then he suddenly remarked: "Oh, yes! there is a man and his wife over there who are *always* up and ready for business. I feel pretty sure they will fix you out nicely." In a minute more, with the aid of my wheel over the vitrified-brick pavement, I stood before a little building called a temperance restaurant. The man was up, and said I could have some breakfast in five or ten minutes. His face looked familiar to me; and when I told him who I was, it turned out to be one whom I met years ago in our county jail. He was in trouble; and, together with the other spiritual advice I gave him, was—what do you think, dear reader? Why, I told him the shortest way out of *his* troubles—in short, the "straight and narrow path" to get out and keep out—was to *get married*. He knelt with me on the cold stone floor of the jail, and promised to lead a better life; and he finally, it seems, took my advice and got married; and he and his wife had been for years doing a good business right on that crossing close by the electric cars and steam-cars. They gave me a breakfast in short meter, that was fit for a king—or, rather, I *thought* it was, and that, you know, amounts to the same thing.

It is a little funny that, when I got on my wheel, I was happy again; yes, a new streak of happiness seemed to have got into my wheel; and there is not any nicer road for wheeling, that I know of in the world, than that from South Akron to Copley.

I reached friend Atwood's celery-farm before he was up—or, at least, he was not out to his place of business. I found a boy firing up a traction engine. This engine was belted to a rotary steam-pump. The pump was large enough to throw a stream of water four inches in diameter. The inlet-pipe is five inches, and the outlet four. This rotary pump lifts the water perhaps five feet. He has utilized a creek that runs perhaps a quarter of a mile north of his forty acres of celery. The water comes to the pump through a twelve-inch sewer-pipe. Then by cementing the joints very securely he sends the water through five-inch

sewer-pipes all over his forty acres. The four-inch stream pours out on, say, half an acre at a time. When this half-acre is thoroughly soaked he puts it on the next one, and so on. Whenever the ground gets dry enough the cultivators are kept going, and the whole thing is working like a charm. His five-inch sewer-pipes, good quality of seconds, cost him only a cent and a half a foot. He manages to dispense with expensive valves by plugging the openings with a wooden plug held in place by bolts on a U-shaped yoke. In fact, our friend Atwood has, at comparatively small expense, worked out and got into actual practice the best irrigating-plant I ever saw anywhere.

Now a little advice to those who are thinking about irrigating. A windmill may answer for small areas—say a quarter or half an acre; but for a whole acre you will want a big windmill and a big tank for storage. But you want lots of water to do the work right. During a severe drouth, such as we had in May, sprinkling water on top of mucky ground is apt to do harm rather than good; and even letting water on through an inch hose is slow work, and answers for only a small area; but with a stream coming out of a four-inch pipe you can flood the ground, and make it soak in clear to the roots of the plants. The forty acres of muck land I have mentioned has a very little slope, so that, by taking water on at the highest point, it can be made to run over the whole surface. I should have said, looking at the ground at the time I was there, it was almost too wet. Friend Atwood says it is the way celery wants to be kept to do its level best. As one approaches the grounds and gets a glimpse of it from the hill, it looks almost like an enchanted land instead of a reality. The straight rows,* running away off in the distance, look like slender threads of gold, especially where the Golden Self-blanching is planted. Then the White Plume would make silver threads, contrasting beautifully with the other; and the Giant Pascal with its deep dark green, and larger, and of more robust growth, comes in again to delight the eye and please the lover of high-pressure gardening. Friend Atwood has been constantly increasing his acreage ever since he started, and his celery has always gone off at good prices; and, if I am correct, the supply has never been equal to the demand, especially during the winter months. At present they have found the safest method of wintering to be the open air. With their great quantities of muck that can easily be kept dry for facility in handling during the winter months; *i.e.*, it is kept dry by letting the water off through the drain-tiles—they get a complete protection from frost, and are never troubled with rot. This land, I presume, would not have brought \$5.00 an acre a few years ago; but now I doubt whether it could be bought for \$200 an acre.

FOURTH OF JULY, AND HIGH-PRESSURE GARDENING AND FARMING.

You may inquire what these have to do with

*To secure rows so absolutely straight, as they do on celery-farms, a small rope—say something like a clothes-line, or larger if you choose—is stretched from one end of the field to the other. Then a roller, heavy enough to make the ground smooth and solid, is run over the rope, and the plants are set in the print this rope makes in the ground. The hard rolled surface also makes a nice place to walk on while you are setting the plants. After the plants are set, flooding them with water makes a sure thing of an even stand. I believe that sometimes, when the weather is exceedingly hot, the plants are shaded by one-foot boards held up by a piece of drain tile at each end of the board and one in the middle. As these boards are used afterward for bleaching the celery, they are always near by, ready for use.

each other. Well, only this: I have for six months past been trying to get time to visit friend Terry, my cousin Wilbur Fenn, and some of the other progressive men in that direction; and when it was decided that we should stop all work on the Fourth, and "shut up shop," letting every one celebrate and enjoy himself after his own fashion, I decided to take mine with a wheel-ride; and I commenced celebrating about 3 o'clock on the afternoon of the 3d. You know I always take a new route where I can do so conveniently, so as to see more "homes" and meet with more adventures. So this time I got lost as usual, and did not find myself until I was unexpectedly in sight of friend Crawford's. Even though it was nearly sundown I stopped to take a look at his berries. I wished especially to see if the runnerless strawberry on friend Crawford's grounds was an ever-bearer, as mentioned on page 573. Sure enough, it had some berries on, but they were not as small as raspberries, after all, and the plants did not come from friend Goldsborough, but from a man by the name of Niman, in Texas. It had put out blossoms, and ripened fruit of fair size and good flavor since my previous visit. Their potato onions had, in consequence of the dry weather, ripened up and matured a small crop almost before July came in. The white-top onions were also going to be a failure, or pretty nearly so, so far as getting top sets of any size was concerned.

I reached friend Terry's just as it was getting dusk. His automatic watering-device I found close by the roadside, and there it was doing duty, sure enough. The water (regulated by a float) always stands just so high in the trough, no matter how many cattle go there to drink; and not a drop of water is wasted during this dry time. The water comes from a spring on higher ground, four or five rods away. His potatoes this year are the New Queen, Irish Daisy, and the Freeman, with a few other sorts for testing. The Freeman, although an early potato, is making a much better show than any of the others. I could not see a trace of blight; the stand was very perfect and even. The leaves were thrifty, and of a bright green. Although his clover was the best I had seen in either Medina, Summit, or Portage Counties, it was having a rather tough time of it.

The succession of dry seasons we have been having is doing much to encourage opening up the low mucky grounds throughout Ohio, and some important facts are coming to light. In the potato-field adjoining Terry's, a valuable fact shows clear out in the road to the passers-by. Half of the field was planted with potatoes raised on upland, and kept hard and firm by being buried on Terry's plan until the time of planting. The other half of the field was planted with potatoes not as good, grown on muck land. The muck seed gave ever so much the best stand, and the potatoes are now away ahead of the others. I believe it is generally considered that potatoes grown on low muck ground are not as good for table use; but I think I have heard before that they were just as good to plant, or even better. It is often claimed that potatoes for seed raised on some other farm or some other ground are better than those raised on the same piece of ground.

I found Walter Atwood (brother to the one who has the celery-farm) cultivating his garden. A row of tomatoes containing green fruit almost full size attracted my attention. "Surely these haven't grown to this stage since the frost?" He replied that they were carried safely through the frost by being covered with a double thickness of burlap. Where only a single thickness was used, the plants were more or less injured. Well, half the row showed

beautiful, smooth, handsome tomatoes. They were grown from a paper of Burpee's Matchless. The other half were crooked, twisted, ungainly things, hardly worth taking as a gift, even when ripe. These latter were grown from a paper of seed furnished by the United States seed department. Of course, they were a free gift; but on a single row of tomatoes it cost my relative a dollar or more for taking a paper of seeds as a gift instead of buying them from a responsible seedsman. The government seed-shop had labeled them Lorrilland; but they were certainly nothing like the Lorrilland, but the poorest and most worthless strain I think I ever saw in my life.

I found my cousin Wilbur Fenn with the ground all fitted, ready to plant about nine acres of potatoes. These were to be put in the 5th of July. When I inquired what condition his seed was in he took me to the cellar and showed me over 100 bushels of Monroe Seedlings, scarcely sprouted at all, and almost as hard and firm as when they were first put in. It was a surprise to me, as it was the 4th of July, and after the most severe hot dry weather we have had in any season, to find potatoes in such excellent order as this. Well, it is somewhat owing to his good cellar for the purpose, and somewhat owing to the fact that the potatoes are regularly shoveled over about once in two or three weeks. He has learned the trade of keeping potatoes in good order, and he does it every time. This is a part of his system of getting good crops from potatoes planted in July. Yes, and we must not forget that the late-grown potatoes are the only ones that could be kept hard and firm, like these. The cellar is pretty well down in a gravelly loam. Then the earth is banked up all around, clear up to the woodwork of the building. The windows are tight, and covered with carpeting, so as to exclude light, and also to exclude the summer heat from the outside. In fact, it was so cold down there on the 4th of July that it almost made me shiver. His neighbors and others keep saying, "Well, you hit it this time, but some time you will be caught out by an early frost—see if you don't." Well, he has been caught repeatedly by early frosts and freezes; but he gets his potatoes into that cellar, by some hook or crook, notwithstanding; and such late-grown potatoes are worth more in the spring, for table use, planting, or any thing else. All things considered, he finds the Monroe Seedling the best for his special system of any. Of course, he has other potatoes planted earlier; and we looked over a whole potato-field of Freemans, Six Weeks, Craig Seedling; and last, and probably looking best of all, Monroe Seedlings that were pretty nearly a foot high.

Then we adjourned to the berry-patch. I think I never saw so many nice raspberries on, say, a quarter of an acre of ground before in my life. They are the Hillborn. But his gravelly loam is specially adapted to small fruits, and almost all other kinds of fruit generally. In going to the house we passed the strawberries. He went over to Matthew Crawford's after he had pretty well sold out of plants. But friend C. said he could give him some good plants of the Barton, Beverly, and Beder Wood. All are imperfect except the latter. I made quite a fuss over the raspberries; but I uttered more exclamations of delight over that strawberry-patch on the 4th of July. The whole family had used all they wanted, and there happened to be more beautiful large berries, dead ripe, than even "Uncle Amos" could manage. Now, I do not know whether it was the varieties mentioned; that beautiful, gravelly loam where there had been a garden

for a good many years, or whether it was cousin Fenn's special treatment; and especially I can not understand why he should have great *perfect* strawberries so late in the season when everywhere else they are dried up and gone. I have noticed that friend Crawford gives the Beverly a big recommend; and perhaps the excellent varieties have something to do with it.

By the way, I must not forget to mention that, while I was at friend Terry's, I was treated to a generous dish of his inimitable Sterlings, and on the 4th of July too. You know I once decided to drop the Sterling; but that beautiful rich tart taste, when once tried never to be forgotten, made me decide that the one row of Sterlings that still remains on our grounds shall be kept there after all, as so many people prefer the Sterling for a late canning berry, and one that will stand the frost as well as or better than any thing else. On the way to the house a group of five bright interesting children claimed my attention.

"Now, Uncle Amos, you must come and see our garden before you go home."

Sure enough, there was the *children's* garden. It was not much larger than a dinner-table—perhaps the size of two dinner-tables. It contained two monstrous hills of potatoes. Of course, Wilbur Fenn's children would have potatoes in *their* garden. Then there was one row of peas ready to pick, and a sprinkling here and there of other vegetables. And then I told them about Huber's garden. He promised his Sunday-school teacher to plant five cents' worth of seeds, and give the crop to mission work. He was going to take a five-cent packet of radish seed; but I suggested he should go to our seed-woman and get an ounce for the five cents, as he did not have to pay any postage. After planting his bed full (the bed being about as large as a good big dinner-table) he had some seed left which I told him he might take back. He took back three cents' worth, and paid *two* for what he planted. In about 30 days he sold 29 bunches at 3 cts. per bunch, making 87 cts.; but it was on one of our highly fertilized plant-beds. With another five cents he bought half a dozen tomato-plants. They are trained up on the most approved plan, taught by our Ohio Experiment Station, and they are now loaded with green fruit. That reminds me that we put our first picking of tomatoes on the wagon to-day, July 8. They were from the Fordhook Early, planted in a deep bed so they could be covered with sashes during the May frosts. They are now trained on poultry-netting, and stand perhaps four feet high.

At Willis Fenn's (another cousin) I found him spending the Fourth getting his ground ready for seed corn. Hay is worth from \$20 to \$25 a ton, and it behooves a progressive farmer to save every bit of it if possible. His plan of "cultivating" potatoes just before they come up pleased me so much that I want to describe it here. He uses the same clod-crusher described in the Potato Book, page 181. See cut below.



Clod-crusher and Leveler, made of 4x4 Scantling.

It is simply six 4x4 hard-wood scantling, 8 feet long, put together with bolts, with the corners down. This is drawn over the field so as to mash lumps, level the ground, and scrape the very daylight out of every thing in the shape of weeds just starting. It leaves the gravelly loam almost as level as a brickyard; and when the potatoes come through they look remarkably pretty, and the ground is in just the right shape for the Breed weeder a little later.

In cultivating potatoes or any other crop during a dry time like the present, I believe it is considered on all hands that level culture gives the best results. Stirring the soil has a tendency to make the surface dry out faster, it is true; but notwithstanding this, a soft mellow surface resists drouth infinitely better than a hard solid crust; so we must stir the soil. But if, after having stirred the soil, you leave it in ridges or furrows—even small furrows—such as our 12 or 14 tooth cultivators leave—the drying-out process goes on more rapidly than if these little furrows were all brushed down level and smooth; and in order to do this, friend Terry has a strip of board fastened to the back end of his cultivators, the corners of the board rounded off, and the lower edge slightly rounding, so that the ground which is a little lower in the middle of the furrow curves slightly upward toward the top of the hills. This treatment, both in theory and practice, leaves the soil in the best condition to resist drouth, and to take advantage of the first shower. As soon as you have rain enough to leave a crust over the surface, the harrower with the board follower should go over it again.

I found Richard Fenn (*still* another cousin) harrowing his potatoes with an ordinary square-toothed harrow, the teeth being straight down instead of slanting. I asked him if that was not rather rough treatment for the little potato-plants; but he told me to look at them after he had gone over, and see how much they were injured. I had to give up that he was doing a splendid job of cultivating, with little or no injury to the potatoes. His field had been gone over with the clod-crusher, shown above, just before the potatoes were up.

Further on I visited Mr. Metlin. He married a bright black-eyed cousin, who used to be a playmate of my childhood. I tell you, friends, it is awful nice to have a good lot of cousins, especially on the Fourth of July. These people had gone away; but the old black-cherry trees where I used to help myself to their fruit, 45 years ago, were still furnishing their luscious treasures. A big broad ladder stood right in front of the door, reaching into the top of one of the great old trees. Before I took my wheel again I pinned a paper on the door, which read: "Cousin Amos called, and in your absence helped himself to the cherries. He extends many thanks." Then I paid a brief visit to my aunt Julia, who is now 91 years of age, and the only remaining one on earth of my father's family of eleven boys and girls.

When my wheel and I reached my own home, our people were just gathering around a Fourth-of-July supper on the lawn. And thus ended my Fourth.



FLORIDA TRAVELS.

The home of Irving Keck, of Bowling Green, was my next stopping-place. Friend K. selected his present location after quite a little examination over different portions of Florida. One thing that attracted him to Bowling Green was the beautiful soft water; and his good wife has hit it exactly in calling it "snow water." It is so clear and soft that it reminds one of melting snow in winter time when you want a nice drink of pure water. Another thing that took hold of him was the sight of real corn-

cribs filled with real corn. Perhaps there are few other places in Florida where farming is carried on to such an extent as to require a corn-crib; but before friend Keck got down to raising crops of corn he brought in tools for farming such as they use in Illinois and Iowa; and he tells me that, when he first started to plow with two horses, the neighbors came for miles around to see the new-fangled farming-tool. But it was not long before they caught on, and he sold several plows. But before one of his neighbors could make it work he had to go over and start up and get the thing going. The corn raised is, however, different from our corn here in the North; and it is put in the crib with the husk on, the husk protecting it from the weevil, which are very bad in that warm climate. The locality seems to be a pretty fair one for bee culture; but friend K. has so many other industries on hand—fruit-growing, gardening, general farming, a small mill for grinding corn, with an engine to run it, etc., that he does not give the bees very much attention of late.

Charles Stevenson, of Bowling Green, purchased a queen and one pound of bees of us in the month of June; and from this start, and nothing else, he increased to seven colonies, besides the original, in one season, and produced 112 lbs. of comb honey. The next season he secured 350 lbs. of comb honey from five colonies; and this product from a single queen and a pound of bees in June is perhaps the largest on record. A sad fact stares me in the face right here. When friend Stevenson got that first pound of bees and queen he was full of enthusiasm and energy and love for the wonderful new industry. Is it not a little sad to think that a mere novice, almost without experience, should sometimes produce larger results in the outset than he does when he gets to be a veteran in the business? Now, Dr. Miller must not feel hurt because of what I have said, and imagine that I have nobody in mind but himself. It is not so, doctor; but just now my impression is that some bee-keepers right around Bowling Green would complain that theirs is not a good locality.

Most of our readers have at different times experimented with a little vegetable called chufa, or earth-almond. Well, these are raised in immense quantities in Florida, for pigs. The pigs harvest the crop, and leave the ground in splendid condition for any future crop. I think these little nuts (for they taste like nuts) are fully as good as if not better than peanuts, and they can be grown with very little care or labor in almost any locality. I believe they have a permanent value on the market, but I have forgotten what it is.

A great many experiments are being made in the way of permanent pasture in Florida; but the weather is altogether too warm for most of the clovers and forage crops of the North. The cassava root is very valuable, both for food and for stock; but it can not be kept any way but in the ground. It must be dug almost as it is fed out. This is the plant that furnishes the tapioca of commerce; and it is such a simple matter to separate the tapioca from the root itself that each housewife can prepare it herself. The residue of the root, after taking out the starchy portion, makes most excellent puddings—at least, it does under Mrs. Keck's manipulation. The plant is propagated by cuttings, or, in fact, by chopping up the stalks at almost any stage of growth, if I am correct.

There is very much difference in the quality of the soil in Florida. If you want good land, select that with a heavy growth of pine-trees—large trees, and close together. Where the trees are few, and far apart, and small and

spindling at that, the land is not of much value—at least, for farming crops. At different places in Florida you find little patches of sand, of greater or less extent, where it seems that almost absolutely nothing will grow. These are called "sand soaks," or "chokes." There are some of them on friend Keck's land, and he has tried in vain to get any thing to grow on these spots, unless it is the wild cherry. This flourishes where nothing else will grow at all. Friend Keck has a queer theory about orange-trees. He says twelve good orange-trees on an acre of ground will bear more fruit than any larger number, after they once get established. If these twelve trees were equal in size to some of the trees I saw, it might be true.

Most of our older readers will remember the articles we used to get from Mrs. Mahala B. Chaddock. Well, one of her queer speeches was, that she wanted to go down to Florida and wrap tissue paper around oranges, and drive a mule team. Through the kindness of friend Keck it was my pleasure to ride after a "mule team" several days. In fact, he took me from Bowling Green to Avon Park and back, a distance of twenty miles, or rather more, considering the roundabout way we went. Our first call was on the National Peace River Phosphate Co. The phosphate is secured by a process called in California "hydraulic mining." The surface soil is removed until they reach the strata containing the phosphate nodules. These are granules, the size of shot up to that of a hickorynut—perhaps the most of them the size of a pea or bean. By means of a steam-pump, water is thrown with great pressure into the bank, or sides of the soil, crushing and crumbling down the sand and phosphate grains together. Then the same engine that carries the pump sucks or draws up the mud and water. This is elevated sufficiently so it can pass through a series of revolving cylinders, letting the mud, dirt, and sand run off into a pond or lake, while the valuable phosphate is saved. After the sediment settles in the lake, the water is used over and over again. The valuable phosphate is then loaded on to cars, and carried to the mill, where it is more thoroughly washed, and then dried and shipped where wanted, to different parts of the world. Later on I passed shiploads of this phosphate going to foreign countries. The composition is similar to that of bone or bone meal; and it contains so large a percentage of phosphorus that it is now to some extent separated and used for making matches. Its origin is largely a matter of speculation; but it seems likely that it comes from decaying bones and animal matter of fish and various reptiles, which have accumulated or washed up into beds.* In process of time the phosphate grows or accumulates in these nodules. It is a little strange that this exceedingly valuable product of Florida is used but very little by Florida farmers and gardeners, because it does not happen to be the chemical element needed for their soils. A little talk with the managers of the phosphate plant very soon convinced me that there was no imaginary value placed on the product. In fact, they know what they are doing, almost as well as does the miner of gold or silver. The output is sold according to the per cent of

phosphate it contains; and this is determined by accurate chemical assay. The managers are as much at home in the science of chemistry as bee-keepers are in discussing queens and hives; and it brought vividly to mind my researches in chemistry during my early years, while I discussed the matter with them. One of the men on the steamboat told me the phosphate industry of Florida amounted to 27 millions of dollars a year; but from some government reports that I have gone over hastily since my return home, I am inclined to think that somewhere about half that sum, or less, would be nearer right.



STRAWBERRY-PLANTS.

It is altogether too dry here in Medina to fill orders for strawberry-plants, unless it is very small orders, with plants taken from our beds kept wet by our sub-irrigation.

WANTED—FIGWORT SEED.

If you haven't got any, can't you gather some for us? We will pay you \$2.00 for a pound of fresh new seed; and now is the time to gather it if it is growing on your premises.

WANTED.

Samples of the new vineless sweet potato. As there has been a good deal of inquiry in regard to this, I wish some of the friends would mail me some samples, to try their cooking qualities; also tell us how low you can ship them by the barrel.

SCARLET GLOBE TURNIP SEED.

We have something over 100 lbs. of this seed, raised by one of our bee-keeping friends. We can offer it at the following prices: Ounce, 5 cts.; 4 lb., 10 cts.; 1 lb., 35 cts.; 2 or more lbs., 30 cts. per lb.; 5 lbs. or more, 25 cts. per lb. If wanted by mail, add 10 cts. per lb. for bag and postage. By consulting any of your seed-catalogs you will see the usual price is 50 or 60 cts. per lb., oftener 60.

SWEET CLOVER OR BOKHARA SEED FOR SOWING.

As none has been offered in response to our call in last issue, we are obliged to buy the hulled sweet clover, called Bokhara, of the New York seed-merchants. This is just as good, but it costs more than the ordinary sweet-clover seed furnished by bee-keepers. This is because the latter is usually sold and sown with the hulls on. Now, this is just as good for seed with the hulls on; in fact, some claim that it germinates better; but when you are buying it by the pound you do not get as many seeds as when the hulls are off; therefore the best prices we can make for the present, on hulled clover seed, generally called Bokhara, is 18 cts. per lb.; 5 lbs. at 16 cts.; 10 lbs. or over, at 15 cts. If wanted by mail, add 10 cts. per lb. for bag and postage. We can supply any quantity promptly at the figures given above. As soon as we get some of the new crop with the hulls on the prices will probably be the same as in our catalog.

CRIMSON-CLOVER SEED, HOME-GROWN AND FOREIGN-GROWN.

In answer to several who have asked if the seed we advertise is home-grown we quote from a letter received by one of our New York seed merchants:

"Our crimson-clover seed is all imported stock. There is very little, if any, American-grown seed in market; besides, we are selling and shipping carloads to the producing countries; so, even if you buy direct from Delaware, it is very doubtful whether you get Delaware seeds. We consider the imported seed better and cleaner than the domestic."

By another season, very likely there will be plenty of home-grown. With the excellent reports that come with the crops that have been already produc-

*Quite a quantity of bones are thrown out in the mining operations; but these are either thrown aside, or utilized in some other way. Sharks' teeth are also quite plentiful in phosphate beds. I carried a lot around in my pocket until they cut through the lining, and then I had to give them away. If you were to see one of them, and feel its serrated edges, you would not wonder so much how it is that a shark can bite off a man's leg at one snap of its jaws.

ed for the past two or three years, it seems a shame for the United States of America to be obliged to send across the ocean for this seed. And here is a field for bee-keepers to get a crop of honey and a valuable crop of seed, and feed for all kinds of stock, to say nothing about improving the land by having clover to plow under. For prices see last issue.

AMERICAN PEARL ONION-SETS.

The present state of the crop indicates that prices will not be less than 25 cts. a quart, \$1.50 a peck, or \$5.00 a bushel.

White Multiplier onions, 10 cts. per pint; 15 cts. a quart; \$1.00 a peck; \$3.50 a bushel.

Winter or Egyptian onion-sets, quart, 5 cts.; peck, 35 cts.; bushel, \$1.00. If wanted by mail, add 10 cts. per quart extra for postage and packing. All of the above will be ready to ship when this reaches you.

We have described the above three varieties of onions so frequently that we shall not go over it again here, except to say that all of them may be planted out now. For fuller particulars, see our seed and plant catalog, mailed free on application.

OTHER THINGS THAT MAY BE PLANTED THE MIDDLE OF JULY.

Kidney wax beans will give a crop for table use before frost; and with usual good luck a crop of seed also; the same with the Best of All green-podded wax beans. Either kind, qt., 20c; peck, \$1.25.

Beets for table use do nicely put out now; also early cabbages if you have the plants. Carrots and parsnips, as well as mangels, will produce half-sized roots, which are considered better, by many, for stock. Put them in rather thick.

Now is just the time to put out celery, if you can get the plants; but at present we are short of all kinds.

Corey's Extra Early and Ford's Early corn will also give roasting-ears, probably. All kinds of sweet corn can be put in now for corn-fodder. Until our sweet corn is sold out we will make a special price of 50 cts. a peck, or \$1.50 a bushel.

Cucumbers for pickles will probably escape the frost. Ounce, 5 cts.; lb., 50 cts.

Now is the time to start Grand Rapids lettuce for fall use. Put it in beds with boards a foot high around the outside; give it plenty of water, and keep it covered with cotton sheeting when the sun is hot.

You can sow almost any kind of onion seed for sets; but if the fall should be very wet you would have bunch onions instead of sets.

If you want to raise your own seed peas, now is the time to plant them. While the crop will not be as large as spring planting you will get seed free from bugs—at least, that has been our experience; and we have never had them fail to make good peas for table use, when sown in July.

We have some Premium Gems that have come up beautifully within the past week, and there has not been a bit of rain on them since they were planted. We make a special low price on the Premium Gems of 75 cts. a peck, if ordered now.

If you have some extra-early potatoes that are already sprouted, or that you can induce to sprout right away, they will make a crop before frost.

All kinds of radishes will do nicely now if you have the right kind of soil for them. We are getting magnificent ones from our muck grounds right along, without a bit of rain. The Chinese Rose winter is one of the prettiest winter radishes for fall planting.

Salsify, or vegetable oyster, will be large enough for nice table roots if planted now; and we can give you fresh seed, of our own growing, for 10 cts. an ounce, or \$1.00 per lb.

This is also just the time for spinach during this month and next. It is also just the season for all sorts of quick-growing turnips. We consider the Purple-top White Globe as perhaps the best.

Last, but not least, now is your time to sow buckwheat and crimson clover. Sow both at the same time on the same ground; and if you do not get a crop of one you are pretty sure to get a crop of the other. All seeds by mail, 9 cts. per lb. extra.

FRESH LOT OF IMPORTED QUEENS.

We have just received a fine lot of imported queens direct from Italy. A good many orders have been awaiting their arrival, but we shall have a few more choice queens to spare. Price now is the low-

est at any time of the year. Best imported, that is, the very best select, are now only \$4.50; fair imported, \$3.00.

THE RUNNERLESS STRAWBERRY—MORE ABOUT IT.

Mr. Root:—The runnerless everbearing strawberry you lately mentioned in GLEANINGS was doubtless from a plant I sent friend Crawford for trial last year. The fruit is not much larger than a raspberry, and shuckless. I have never known a plant to send out a runner, because it is their growth habit to make crowns instead of runners. Yesterday I separated the roots of a plant and counted seventy-two crowns, each of which had some roots, or would soon put them out if set in the soil as a cutting. They not only bear continuously from May till frost, but put out again after the first frost last autumn; and I picked a few in December. The fruit is rather soft, and quality fairly good. To those who, like myself, like strawberries in and out of season they are an acquisition. I have not yet sold any berries in our market, and don't know how they will take. They were raised from seed brought over by me in 1891. Everbearing strawberries are common in France. I have now several hundred splendid-looking French and English seedlings.

ARTHUR T. GOLDSBOROUGH.

Wesley Heights, Washington, D. C.

Italian Bees in 10-frame Langstroth hive, at \$4.00.

Tested Italian queen, 75c; two or more, 60c each. Untested, 50c each. Address

OTTO KLEINOW,
No. 122 Military Ave., Detroit, Mich.

Square Glass Honey-Jars.

We have on the way another car load of honey-jars. Four sizes: dimes, half-pounds, pounds, and 2-pound jars. Jars and packing is first-class, and safe arrival is guaranteed in every instance.

Bro. Root seems to discriminate against the Muth jars. Our friends are therefore advised to compare prices in Muth's and Root's catalogs before ordering. We mail these catalogs together.

CHAS. F. MUTH & SON,

976 & 978 Central Ave., - Cincinnati, Ohio.

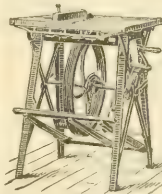
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I Prevent Swarming



by de-queening, and sell or discard all of my queens every year. I now offer again all of my tested queens for 65 cts. each, 2 for \$1.25. Many of them are worth three times the money. A few mismated queens at 30 cts. each.

T. H. KLOER, Terre Haute, Ind.



Read what J. L. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will."

Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to

THE A. I. ROOT CO.

Please mention this paper.

ALL PRAISE THEM. ————— ITALIAN QUEENS

From the apiary of
W. H. Laws, Lavaca, Ark., can't

BEAT for BEAUTY and
BUSINESS.

The leading bee-keepers of the U. S. are my customers. Your choice—either Golden or Leather-colored.

Prices Reduced.—Fine breeders always on hand, \$2 to \$3; untested, 75c; 3 for \$2; tested, \$1; 6 for \$5.

W. H. LAWS, Lavaca, Ark.

☞ In responding to this advertisement mention GLEANINGS



We can fill
Your Orders

for Dovetailed Hives, Sections, Foundation, etc., by Return Mail. Have A. I. Root Co.'s goods at Their Prices. Will save you freight, and get goods to you in a few days. Catalog free.

JNO. NEBEL & SON, High Hill, Mo.

BEGINNERS.

Beginners should have a copy of the Amateur Bee-keeper, a 70-page book by Prof. J. W. Rouse. Price 25 cents; if sent by mail, 28c. The little book and the Progressive Bee-keeper (a live progressive 28-page monthly journal) one year, 65c. Address any first-class dealer, or

LEAHY MFG. CO., HIGGINSVILLE, Mo.

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GOLDEN QUEENS Bred for business. Untested, 65 cents each; 6 for \$3.25. Tested, \$1.00 each. Fine breeders, \$2.00 each extra. Select straight 5-banded breeding-queens, \$4.00 each. To all new customers one **GOLDEN QUEEN** for 50 cts. Satisfaction and safe arrival guaranteed.

E. A. SEELEY, Bloomer, Ark.

P. O. Money Order office, Lavaca, Ark. 7-20

W. O. Victor, of Wharton, Tex., took

45,000 Lbs. of Honey in 1894.

He offers Italian Queens—good, old-style honey-queens—untested, first order, to any address, at 50c each. Also bees in any quantity; 450 colonies to draw from. Root's goods constantly in stock. Prices to suit the times. Buy near home, and save freight.

World's Fair Medal

Awarded my **Foundation**. Send for **free samples**. Dealers, write for wholesale prices. Root's new **Polished Sections** and other goods at his prices. **Free Illustrated Price List** of every thing needed in the apiary.

Bell Branch, Mich.

M. H. Hunt.

PATENT WIRED COMB FOUNDATION
Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,

127d8b Sole Manufacturers,
Sprout Brook, Montgomery Co., N. Y.

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TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee Hives, Shipping-Crates, Frames, Foundation, Smokers, etc.

PAGE & LYON MFG. CO.,

87d8b

New London, Wis

Please mention GLEANINGS. 21-8db

Promptness is What Counts.

Honey-jars, Shipping-cases, and every thing that bee-keepers use. Root's Goods at Root's Prices, and the Best Shipping-point in the Country. Dealers in Honey and Beeswax. Catalog free.

WALTER S. POWDER,
162 Massachusetts Ave., Indianapolis, Ind.



IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians**, the result of 16 years' careful breeding.

Dr. H. B. Lung, Harrodsburg, Ky., says: "I have had the pleasure of seeing many fine strains of bees, yet I have never seen such industrious, energetic bees. I must express my admiration for your success as a bee-propagator."

Warranted queens, 80c each; 3 for \$2.00. Select warranted queens, \$1.00 each. Safe arrival and satisfaction guaranteed.

Those who have never dealt with me, I refer to A. I. Root, who has purchased of me 808 queens. Circular free.

J. P. MOORE, Morgan, Pendleton Co., Ky.

MUTH'S HONEY-EXTRACTOR, SQUARE GLASS HONEY-JARS.

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "Practical Hints" will be mailed for 10c in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.

Golden Queens From Texas.



My queens are bred for business, as well as for beauty and gentleness. Safe arrival and reasonable satisfaction guaranteed. Untested, 75c; tested, \$1.00. Write for price list. 5-16ei

J. D. GIVENS, Lisbon, Texas. Box 3.

Hens with Bees.



Dr. Ashley having finished breeding for this season wishes to dispose of his

White Plymouth Rock and White Wyandotte Fowls,

to make room for chicks.

All warranted one year old, and from the best pure-bred stock in the country; \$2.00 per hen; \$3.00 for cock. Five hens for \$7.00. Address

H. J. ASHLEY, Machias, N. Y.

"The Market Garden."

A Monthly Journal

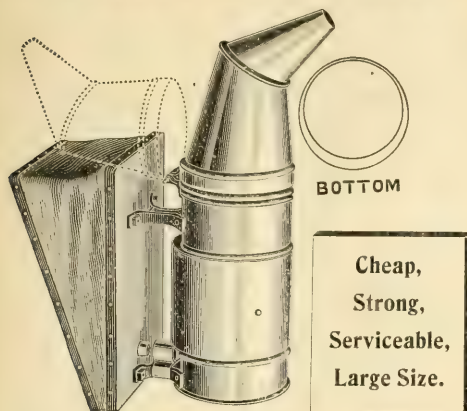
For Market-Gardeners and Truckers.

50 Cents a Year. Sample Copy FREE.

THE MARKET GARDEN CO.,
Minneapolis, Minn.

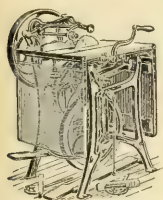
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The New Corneil Smoker.



JUST THE THING for those who want a first-class smoker at a medium price. Size of cup, 3½ inches; curved nozzle, hinged so as to swing back; legs of malleable iron, secured by bolts. The blast is the well-known Corneil principle. Weight of smoker, only 20 ounces. Price \$1.15, postpaid, or 85 cts. if sent by express or freight with other goods.

**THE A. I. ROOT COMPANY,
MEDINA, OHIO.**



ONE MAN WITH THE UNION COMBINATION SAW
Can do the work of four men using hand tools, in Ripping, Cutting off, Mitering, Rabbeting, Grooving, Gaining, Dadoing, Edging-up, Jointing Stuff, etc. Full Line of Foot and Hand Power Machinery. Sold on Trial. Catalog Free. 1-24ei
**SENECA FALLS MFC. CO.,
44 Water St., Seneca Falls, N.Y.**

In responding to this advertisement mention GLEANING.

«MONEY-MAKERS»

Are a strain of business Italians that winter in the cold North, and are ready for business, with a bushel of bees, when the flowers bloom. They are gentle and industrious. Queens, warranted pure, in June. Each, \$1.00; six, \$5.00; doz., \$9.00. Safe arrival and satisfaction guaranteed. Never had any disease.

Address **E. F. QUIGLEY, UNIONVILLE, MO.**

In responding to this advertisement mention GLEANING.

Every Farmer

Ought to read the Rural New-Yorker.
(Published weekly.)

It is the business farmer's paper, and a most reliable authority on agricultural and horticultural subjects. Frauds and humbugs fear it. **ONLY \$1 A YEAR.** Send for sample copy to

THE RURAL NEW-YORKER, New York.

We have made arrangements so that we can send it and GLEANINGS for \$1.75 a year.

BEE-KEEPERS' SUPPLIES FOR 1895.

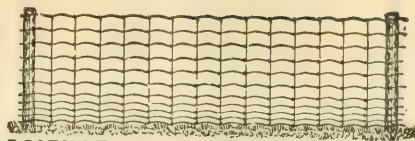
Such as Dovetailed Hives, Sections, Comb Foundation, Extractors, and every thing else used by a bee-keeper. All late improved goods. Immense stock. Goods sold at wholesale and retail. Write for our

DISCOUNTS FOR EARLY ORDERS.

Alsike clover and Japanese buckwheat furnished at lowest market price.

Address **JOSEPH NYSEWANDER, Des Moines, Iowa.**

In writing advertisers please mention this paper



SCIENCE CONFIRMS HORSE SENSE.

A majority of the first class Railroads of the United States and Canada are using **The Page fence**. Scientific tests and comparisons led to this result. Strange to say the best practical farmers of both countries, led only by experience and good common sense, had already decided in its favor, and now Park Commissioners and Cemetery Officials seem bound to make the decision unanimous. We have sold double the amount of park fence this season than heretofore in the whole history of the business.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

3=Banded **TESTED ITALIAN Queens,**
from my own imported
queens, \$1.00 each.
Max Brauer, Beeville, Bee Co., Tex.

Golden or Leather Queens

From the Queen Specialist. . . .

Golden queens from Duvall's best; dark leather queens bred from the celebrated Manum stock (queen mother selected and tested by him).

My drones are all bred from a colony that wintered successfully on summer stand without protection, bees gentle and excellent workers.

This colony is the result of seven direct crosses of golden Italians, selecting the most desirable for breeders each spring, *regardless of color*.

Nearly every queen mates with selected drones as there are no bees within several miles of my yard.

Duvall strain will produce nearly all 5-banded bees, Manum stock 3-banded.

Price 75 cts. each. Safe arrival guaranteed, and shipped by return mail if desired.

Money-order office, North Dana. Address

JAMES WOOD,

North Prescott, - Massachusetts.

In writing advertisers mention this paper.

DON'T BUY CRIMSON CLOVER until you have read the most complete treatise ever printed. Tells you what seed is hardy. How and when to sow. How to succeed in dry weather. Full particulars free.

J. A. Everitt, Seedsman, Indianapolis, Ind.

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,

1214db Sole Manufacturers,
Sprout Brook, Montgomery Co., N. Y.

In responding to

mention GLEANING.

HONEY COLUMN.

CITY MARKETS.

KANSAS CITY.—*Honey.*—We are receiving new comb and extracted. New white comb, 14; extracted, white, 6½@7; dark, 4½@5. Demand very light. Beeswax, 22.
July 20. HAMLIN & BEARNS,
Kansas City, Mo.

CHICAGO.—*Honey.*—We report no new comb honey on market as yet. We anticipate a price of 14@15 cts. for fancy white comb. Extracted will sell at from 6@7, depending on quality. However, it will take a month to establish prices on a firm basis.
S. T. FISH & Co.,
July 18. 189 South Water St., Chicago, Ill.

ALBANY.—*Honey.*—We received our first consignment of new honey from the apiary of I. N. Brown, Clarksville, Albany Co. It is not No. 1 quality. The capping has that unattractive yellow appearance, and we do not think it will bring over 10 or 11 cts. We have frequent calls from summer resorts for fine white honey at good prices.
CHAS. McCULLOCH & Co.,
July 18. Albany, N. Y.

SAN FRANCISCO.—*Honey.*—Honey is firmer, the crop not turning out as large as expected. I quote light amber extracted, 4½@5; white, 5@5½. Comb honey scarce at 10. Beeswax, 27@28.
HENRY SCHACHT,
July 13. San Francisco, Cal.

MILWAUKEE.—*Honey.*—This market continues very much the same for honey as when we reported last. The demand is very slight, and as yet the new crop has not made any appearance. However, the conflicting reports with regard to the possibility of a short supply in some parts of our State have had a tendency to make our market firm on choice old, and we quote choice 1-lb. sections at 15@16; common, 10@14; extracted, in kegs and barrels, white, 7½@8; dark, 5@6. Beeswax, 22@26.
A. V. BISHOP & Co.,
July 20. Milwaukee, Wis.

DETROIT.—*Honey.*—Best white comb honey (new), 14; but little offered. Extracted, 6@7. Beeswax dull, 24@25.
M. H. HUNT,
July 18. Bell Branch, Mich.

BUFFALO.—*Honey.*—Strictly fancy new comb would bring 12@13; other grades proportionately lower. The demand is light yet, and we advise only moderate shipments. Later on we can handle a great many pounds as well as it can be sold anywhere.
BATTERSON & Co.,
July 18. Buffalo, N. Y.

BOSTON.—*Honey.*—Nothing new to note in the honey market. No new has come in as yet, but we expect some every day. There is very little demand. Price for comb, 14; extracted, 5@6.
E. E. BLAKE & Co.,
July 19. Boston, Mass.

KANSAS CITY.—*Honey.*—The old crop of comb and extracted honey is about cleared up. We quote new 1-lb. comb, No. 1 white, 14@15, No. 2, 12@13; No. 1 amber, 12@13; No. 2, 10@11; extracted, white, 6@6½; amber, 5@6. Beeswax, 22.
C. C. CLEMENS & Co.,
July 20. Kansas City, Mo.

FOR SALE.—White comb honey, 14 and 16c. on board cars.
G. R. RUTZAHN, Menallen, Pa.

ALFALFA IN ARIZONA.—We will sell you alfalfa honey F. O. B. Phoenix at 4½c in 1000-lb. lots or more. Less than 1000 lbs. at 5c in five-gallon cans. Car lots a specialty.
J. P. IVEY,
Secretary Bee-keepers' Association,
Phoenix, Maricopa Co., Arizona.

ALFALFA HONEY, very white, thick, and rich. Two 60-lb. cans at 7c. Same, partly from cleome (tinted), 6c. Samples, 8c.
OLIVER FOSTER, Las Animas, Col.

S. T. Fish & Co.,

189 South Water St.,

Chicago.

We handle HONEY every day in the year. Correspondence solicited. We have been twenty years at above location, and refer to

First National Bank, Chicago,
First National Bank, Los Angeles, Cal.,
First National Bank, San Jose, Cal.,
Gleanings in Bee Culture, Medina, O.
Your Banker can see our rating.

—ALSO DEALERS IN—

BUTTER, CHEESE, EGGS, APPLES,
POTATOES.

Our facilities for selling unsurpassed.
Reserve our address for future reference.

BUFFALO, N. Y. Unsurpassed Honey Market
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 1stfdd and Prompt.

CHAS. ISRAEL & BROS.,

486, 488 & 490 Canal St., Corner Watts St., N. Y.

WHOLESALE
DEALERS &
COMMISSION
MERCHANTS.
Established
1875.

HONEY

—AND—

BEESWAX.

LIBERAL
ADVANCES
MADE
ON
CONSIGN-
MENTS.

Queens, Either 3 or 5 Banded.

60c each; 6 for \$3.25. These low prices are to induce you to try them. Catalog free.

CHAS. H. THIES, Steeleville, Ill.

Don't Be Afraid to Buy



those fine, tested Italian queens I am offering for 65 cents, just because I offer them so cheap. It is not on account of any inferiority that I sell them so cheap, but because I replace, every year, all of my queens in over one hundred colonies, run for honey production, and what I get for the old queens I consider just like finding. A good many are sold already, but there is a fine lot on hand yet, equal to any in the country. A few misnamed ones at 30 cts. each.

T. H. KLOER, Terre Haute, Ind.

Please mention this paper.

For Sale!

A Hawkeye camera, recommended by E. R. Root, of whom I purchased it 3 years ago, with instruction-book, plate holders, and plates, at \$37.00. Will sell for \$32.00. Has scarcely been used since, and has an excellent lens which alone cost over \$30.00. Also a World typewriter, in good order, for \$3.00; a copying-press, nearly new, for \$3.50; a Victor safe (new), list price \$60—will sell for \$45.00; a 4 H. P. portable engine and boiler, in good order, \$115.00; a rotary pump for lifting water for irrigating, in good order, for \$25.00; a counter-shaft, new, price \$10.00; also a lot of Dovetailed beehives, combs, foundation, and fixtures. Particulars on application. CHRISTIAN WECKESSER, Sanborn, N. Y.

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CONVENTION NOTICES.

There will be a meeting of the Southeastern Bee-keepers' Association in Fort Scott, Kan., Sept. 19th, 1895. All are cordially invited.
J. C. BALCH, Sec., Bronson, Kan.

The annual meeting of the Northern Illinois Bee-keepers' Association will be held at the residence of O. Taylor, in Harlem, Ill., on Tuesday, Aug. 30, 1895.
B. KENNEDY, Sec., New Milford, Ill.

The Southwestern Wisconsin Bee-keepers' Association will hold its next meeting at Platteville, Wis., Oct. 8th and 9th, 1895. Come all! Don't get discouraged, even if we haven't got a crop of honey. We shall have a good time at Platteville just the same. Bring your wives and daughters with you. Many interesting subjects will be discussed.

M. M. RICE, Sec., Boscobel, Wis.

A BARGAIN in QUEENS
BY RETURN MAIL.

Either golden or leather-colored. All warranted purely mated, workers to show at least 3 bands, at 50 cts each. Three-band breeders, \$1.00. Golden are from one of Doolittle's very best. Leather queens are from an extra choice imported mother.

Choice tested queens, this season's rearing, from imported mothers, 65 cts. each, ready now. Safe arrival and satisfaction guaranteed or money refunded. No disease.

L. H. ROBEY, Worthington, W. Va.

PRICES SLAUGHTERED

ON THOSE BEAUTIFUL RED-CLOVER QUEENS.

One queen, 60 cts.; two, \$1.00. I defy the world to beat them. Don't fail to try them. Satisfaction guaranteed.
G. R. ROUTZAHN, Menallen, Pa.

QUEENS!

Good,
Better,
Best.

The latter is what I am trying to furnish, with what success a long string of testimonials might startle you, as the season is now prime for the rearing of queens, and in competition with some other reliable dealers I will furnish to any new customer 2 Golden Queens for \$1.00; a straight five-banded breeder, \$3.00. Address

W. H. LAWS, Lavaca, Ark.

In responding to this advertisement mention GLEANINGS.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they wish to dispose of, we will insert notices as below, first insertion free of charge. After the first, 10 cents per line. We do this because there is hardly value enough in these queens to pay for buying them up and keeping them in stock, and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I have 25 black and hybrid queens for sale at 35 cts. each.
C. G. MARSH, Belden, N. Y.

We have 35 black and hybrid queens, all very profitable, reared in '94, which we will sell for 25 cts. each, or 6 for \$1.00. Write at once, as we will not hold them long.
RANKIN BROS., St. Clair, Mich.

25 or 30 hybrid queens reared this spring; the very best layers. Some of the colonies have gathered 100 lbs. of honey this season; 30 cts. each.

W. J. FOREHAND, Fort Deposit, Ala.

Special Offer.

For July and August only, to those who have never tried our strain of honey-gathering Italians, we will send one sample queen for the trifling sum of 50 cts. One queen only will be sent at above price to one address. All queens warranted to be purely mated. All orders filled by return mail, weather permitting. Address all orders to

LEININGER BROS., Fort Jennings, O.

Please mention this paper.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must say you want your advt in this department or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchange for cash or for price lists, or notices of offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.

ANTHONY OPP, Helena, Ark.

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.

J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 26-in. planer, power scroll saw, all iron; tenoner, and mortiser, for portable sawmill, or other wood-working machinery. Will give a bargain for cash.

GEORGE RALL, Frenchville, Trempe Co., Wis.

WANTED.—To exchange foundation-mills and honey-extractors for honey or wax.

I. J. STRINGHAM, 105 Park Place, New York.

WANTED.—A foundation-mill, in exchange for other goods. L. L. ESENHOWER, Reading, Pa.

WHAT have you to exchange for a 200-egg size Invincible Hatcher?

G. J. STURM, Mt. Erie, Ill.

TWO practical young farmers, both married, want to work some gentleman's farm on shares or for salary; prefer a good stock farm with some rich bottom land. We mean business. Write to-day.

MANLEY BROS., 197 Yale, Mich.

WANTED.—By a young man lately arrived in this country, a temporary or permanent opening in an apiary or gardening business, preferably situated in the State of New York or contiguous States. Applicant knows something of the care of bees, and is fond of a healthy outdoor life. A cheerful home rather than salary an object. Is a trained clerk, with good recommendations.

Address C. C. DOORLY, 355 W. 31, N. Y. City.

WANTED.—To exchange steam-pump for foundation-mill, Dovetailed hives, or foundation.

E. SIMMONS, Potsdam, Dade Co., Fla.

WANTED.—To buy 2 tons extracted white-clover honey, in 60 lb. tins.

GEORGE G. WILLARD,
270 Pearl St., Cleveland, O.

WANTED.—To rent or buy an apiary in basswood belt of Wisconsin.

E. BARBER,
Sherburne, N. Y.

WANTED.—To exchange latest improved Marvel magic lantern, best quality (cost \$45), also 100 choice views, for honey, beeswax, or offers.

E. E. SLINGERLAND, Troy, Pa.

WANTED.—To exchange bees in new 8-frame L. hives for a ladies' bicycle.

W. D. SOPER,
Jackson, Mich.

Feeding Back

Instructions regarding the selection and preparation of colonies, preparation of the feed, manipulation necessary to secure the rapid capping of the combs, time for removing the honey, and how to manage if a few sections in a case are not quite complete; in short, all of the "kinks" that have been learned from years of experience, and the "feeding back" of tons of honey. Price of the book, 50 cts.

Queens By Return Mail.

Remember that I am selling nice, yellow, tested, Italian queens, of this year's rearing, at \$1.00 each, or six for \$5.00, and sending them by return mail every time—have been doing so for two months. Advanced Bee Culture and one queen for \$1.25. The book, queen, and REVIEW one year, for \$2.00.

W. Z. HUTCHINSON, Flint, Michigan.

Five Assistant Bee-Editors

Please cut out this whole ad. and sign and mail it to—
56 Fifth Ave., Chicago, Ill.

Please send to me the AMERICAN BEE JOURNAL for 3 months (13 numbers). At the end of that time I will send \$1.00 for a year's subscription, or 25 cts. in case I decide to discontinue. You will please address me thus:

Name

Post-Office

State



Sample Copy Mailed Free!

Proof Beyond Doubt.

A customer, looking over my 400 hives in home apiary, said, "Where are your bees? Mine were flying all around thick this morning." I said, "Just stop; look down at any hive." He was amazed. They were just pouring in thick with their heavy loads. This proves two things—they can't be excelled as workers, and quiet.

I opened several hives. He had no veil; was in the apiary ½ of an hour; was not bothered once. Try them. Untested guaranteed queens, 75c. Send for wholesale price list.

Wm. A. Selser,
Wyncote, Pa.

Golden Italian

Queens by return mail, from a breed-er obtained of Doolittle, which he selected and tested out of 1000, for his own special use; he said this queen is a better one than the

World's Fair Queen,

which was valued at \$50.00. Also

Italian Queens

from one of A. I. Root's very best imported breeders; price of queens, untested, 55c; six for \$3.00; 12 for \$5.50; tested, \$1.00 each; 6 for \$5.00. No disease. Shall run 400 nuclei. Ask for free circular, which may be worth dollars to you if you buy queens. Safe delivery and satisfaction will be guaranteed in each and every case.

H. B. QUIRIN, Bellevue, Ohio.

SECTIONS, BEE-HIVES, SHIPPING-CASES

We make a specialty of these goods, and defy competition in quality, workmanship, and prices.

Write for free, illustrated catalog and price list.

G. B. Lewis Co., Watertown, Wis.

In responding to these advertisements mention this paper.

A Full Line of Popular SUPPLIES

Always on hand.

1 lb. sq. flint jars, \$5.00 a gross, sent from this city. Untested queens, now ready, 75 cts. After July 10th, 3-frame nuclei and Italian queen, \$2.50. Discount on quantities. Catalog free.

I. J. STRINGHAM,
105 Park Place, New York.

Dovetailed Hives.

Sections, Extractors, Smokers, and every thing a Bee-keeper wants. Honest Goods at Close Honest Prices. 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

IMPORTED QUEENS, \$3.25; untested, 50 cts.
W. C. FRAZIER, Atlantic, Iowa.

QUEENS. IMPORTED ITALIAN MOTHERS ONLY.

Untested, 55 cts.; doz., \$6. About 11 out of every 12 will make fine tested queens, and for gentleness and industry we defy the world to beat them. Safe delivery. Money-order office, Decatur, Ga. CLEVELAND BROS., Stamper, Newton Co., Miss.

FOR SALE.
ITALIAN BEES AND QUEENS.
QUEENS, 75 CTS.
MRS. A. A. SIMPSON, SWARTS, PA.

If Tons of Honey,

Pleased Customers, and Increasing Trade is a criterion, then my queens are satisfactory. Warranted purely mated queens from 5-banded strain, 75c; six for \$4.00; dozen, \$7.50. Safe arrival and satisfaction guaranteed. Send for free circular.

J. B. CASE, Port Orange, Vol. Co., Fla.

GLEANNINGS

A JOURNAL
DEVOTED
TO BEES
AND HONEY
AND HOME
INTERESTS.

BEE CULTURE

ILLUSTRATED
SEMI-MONTHLY

Published by THE A. ROOT CO.
\$1.00 PER YEAR MEDINA, OHIO.

Vol. XXIII.

AUG. 1, 1895.

No. 15.

STRAY STRAWS

FROM DR. C. C. MILLER.

CRIMSON CLOVER won't count for much as a honey-plant if its chief use is to plow under before blooming. But then, some of it will be used for raising seed.

I WOULDN'T WORRY much whether it was stored in a large or a small hive, if I could have, like that Nevada man on p. 551, a steady honey-flow of $\frac{3}{4}$ to 3 months.

TWO THOUSAND cubic inches is the capacity of brood-chamber C. W. Dayton has reached in the last 13 years (p. 551). That's the figure Quinby settled on 40 or 50 years ago.

DID YOU EVER see bees gather pollen from sweet clover? If you did, what color is it? My bees never seem to gather any. [Honey alone seems to be what they are after around our sweet clovers.—ED.]

TELL YOUR WIFE if she wants nice bread-crumbs, to have *very dry* slices of bread, save them up in a paper bag from time to time, and mash them with a rolling-pin. Then dip in them your meat to fry. [I'm going to try it. It tastes good in imagination already.—ED.]

C. W. DAYTON doesn't want to be "encumbered by unnecessary stores and combs in the hives in the busy season." What harm does an extra comb of solid honey do in the busy season, providing there is extra room for it in the hive? I don't know of any except the weight in handling. Do you?

SWEET CLOVER is now at its best, July 15. Bees don't commence on it till 8 or 9 o'clock, but are thick on it the rest of the day. Probably they can do better on something else early in the morning. [Some day, if it keeps on spreading in the waste places as it has been doing for the last four or five years, we shall value it more than we do now.—ED.]

MY LITTLE PATCH of crimson clover, sowed this spring with oats, is not an immense success. July 15 I found some stalks in bloom a foot high. But it has been through a bad

drouth, and is overshadowed by heavy oats. I suppose it never ought to be sowed in the spring, and I am afraid it will hardly stand one of our winters.

FOR YEARS, following the lead of Adam Grimm, I had a ventilating-space of $\frac{3}{8}$ inch at the back of my hives; and, strange to say, it was never used as an entrance as Doolittle fears, p. 560. But my ventilating-space was at the top, and he may mean at the bottom. I think it helped to keep down swarming, but it retarded the capping of sections at the back end.

TIN TAGS for numbering hives are to be listed another year, perhaps (p. 561). Good! all but the "perhaps." But I don't want to wait till next year. Some of my old tags are lost, and some are getting dim. I can tell the numbers by the place in the row, but I want them correctly numbered before going into the cellar. Punch a little hole in each, to push a half-inch nail through.

CRIMSON CLOVER, according to a footnote on p. 561, is to be sown "about the time corn is cultivated for the first time." Didn't you mean just before going through with the cultivator for the *last* time? [Yes, this was a mistake of our business manager, Mr. Calvert. Only a few advance sheets, however, like your own, had the misprint. A. I. detected the error, and the type were changed.—ED.]

TO SHAKE BEES off combs, I have for years followed Doolittle's plan as learned from him, and given on p. 559; also the plan given in the footnote. For very heavy combs I like Doolittle's plan best, and the editor's plan for combs of medium weight. For very light combs I use a still different plan. Hold the frame in the left hand by one end of the top-bar, and pound on the back of that hand with the right fist.

FRANK BENTON is named on page 559 as a good man for a government apicultural station. Hardly, if he'd be as slow about getting out reports as he has been about getting out the report of the St. Joe convention. [That may be; but I was thinking of that splendid ability he could use if he would; and would he not, under

government pay? He has already made some valuable reports as touching apiculture for the Department of Agriculture.—Ed.]

I DON'T KNOW whether it's best to have more than one place for entrance to a hive; but I notice that, when there's a small hole half way up the front of the hive, the bees crowd it a good deal more than the regular entrance. It's an old-fashioned way; but as the bees seem to like it, isn't it just possible it's a good thing? [That practical bee-keeper, Mr. Julius Hoffman, of "Hoffman-frame" fame, with his several large apiaries believes in having two entrances—one at the bottom and one at the bottom of the second story. His hives are deep.—Ed.]

A SCREW IS LOOSE in the reasoning at top of page 551. Because a ten-frame hive contains only seven frames of brood, it is argued that an eight-frame hive will have only five. I think one of my colonies that had seven brood in a ten-frame hive would have nearer six brood in an eight-frame hive, for it would have much brood in the outside frames of the small hive, and none in those of the large hive. [I think you are right; but I supposed you would not assent to Snell's argument here.—Ed.]

YOU'RE RIGHT, Ernest, on page 549, in saying that I had great difficulty in getting queens to lay in a second brood-chamber. But you may also remember that, in controversy with friend Hatch, I insisted that my queens went back and forth readily, and kept eggs in two stories. I'll see you about this later on. [Do you mean to insinuate that I got on to the wrong side of the fence, i.e., Hatch's side? Really I had forgotten which side I was on. I'll look out next time.—Ed.]

"THE SURPLUS will be a little whiter in appearance where there is a little capped honey under the top-bar than where the space is taken by brood," says F. A. Snell, p. 550. That is, sections are darkened if too close to the brood; and because I can't make sure of the strip of honey to make the brood keep its distance, I want a top-bar not less than $\frac{3}{8}$ thick. [Here is a point for the anti-thick-top bee-keepers to consider a little more than they do; but this is not the only point in favor of deep bars.—Ed.]

RUNNERLESS STRAWBERRIES (p. 573) will be objected to by those who don't want non-swarming bees; but I'd like to have a few of each. But I hardly want stingless bees till Sunday-school teaching has worked a little deeper into Marengo boys. [The real stingless bees, and we have tried them, are no better than bumble-bees. Yes, at our out-yards I'd rather have bees a little cross, and with good long stings. One of our colonies at our bass-wood yard was robbed early in the spring. Fortunately, the thieves encountered one of the crossest stocks. At any rate, they got no honey, and it was evident that they left in post haste.—Ed.]

FOUL BROOD can not be affected by drugs, and it's no use to try any thing in that line, seems to be the verdict on this side the water. May be. But in the face of so much testimony in favor of drugs from good men on the other side of the water, it seems to me pure pigheadedness to refuse to make any trial. If I had a case of foul brood in my apiary I would at least use in the healthy colonies some of the drugs that have a reputation as preventives. If it did no good it could do no harm. [After you had tried as much as we, and failed, your courage would be weak.—Ed.]

SINCE WRITING that "straw" about "tin tags," I find an amendment on p. 564 in the shape of manilla tags. My tin tags have lasted a good many more than "four or five years," and the white paint is still pretty good; but on some of them the black figures are wearing off the white paint. I first tried manilla tags, but in less than a year I one day found them all torn off. But that may have been a piece of malicious mischief. [There, now, you've spoiled my scheme. Seriously, perhaps we had better give up the manilla, and consider again the tin tags. To make them in a wholesale way, and cheap, we must have time to figure. Yes, we'll list the tin tags if they are the best. The sample you send is in good condition.—Ed.]



THE BIG CONVENTION AT TORONTO.

HOTEL ACCOMMODATIONS, ETC.

By R. F. Holtermann.

Friend Root:—I have just been in Toronto to arrange for the North American Bee-keepers' Convention. You are aware that the first session is to be on the evening of Sept. 4th. The convention will meet in the auditorium, normal school. As the meeting is during the first week of the Toronto Exhibition, I expected to be unable to make arrangements with any first-class hotel for reduced rates; but I have succeeded. You will remember the hotel at which members stopped in Brantford when the convention was held there. You were all more than satisfied. Well, the proprietor of that hotel, Mr. Palmer, is now proprietor of the Palmer House and the Kensington, in Toronto. I do not know whether the bee-keepers made so good an impression upon him before, or what is the reason: sufficient to say, he, after a little, consented to give the following rates: Per day, \$1.50, providing members double up. If they require separate beds, \$1.75 per day. This is at the Palmer. The Kensington, just across the road from the Palmer, is upon the European plan—rooms 50 cents and up. In the vicinity are good coffee-houses,

etc., where meals can be secured at from 10 cts. up, depending upon the wants and tastes of the individual—or, perhaps, to speak more correctly, the desires and capacity of the individual. The street-car passes the hotel, and it can be taken within a block of the normal school, without change. The car also runs directly to the exhibition. The hotel is also two blocks from the union station, and not much further to the boat-landing; so I think we are fortunate in this respect. There will be reduced rates to Toronto, covering Canada. Michigan will have a single rate, return tickets. There will be other very low excursion rates from various points in the United States, of which notice will be given you later. Those not within those limits should take regular rate till they reach such territory, and then the excursion rate to Toronto. There will be very low boat rates via Lake Erie and Lake Ontario.

The honey-flow has been rather poor, but I believe there is a very general determination to attend the North American Bee-keepers' Convention in Toronto. The leading papers over here are giving us every assistance, and the meeting will be well advertised.

Brantford, Ont.

[We may be sure that no stone will be left unturned by Bro. Holtermann for the convenience and accommodation of the bee-keepers. We were treated handsomely at Brantford.—ED.]

HOW MANY BEES IN A LARGE SWARM?

SOME INTERESTING EXPERIMENTS OF HOW A BEE-ESCAPE WAS USED TO COUNT THEM ONE BY ONE; WHAT IS THE AVERAGE NUMBER OF EGGS A QUEEN WILL LAY PER DAY? AND WHAT IS THE MAXIMUM?

By J. L. Hyde.

Perhaps what I am writing may be old to you; but if not, you may have it for what it is worth.

I have been weighing my bees that swarmed this summer, or three or four of them, to see how many constitute a swarm; and the best that I could do I could not make out more than 7 or 8 lbs. This would make about 2100 or 2400 by my reckoning. I had a swarm come out July 3, that I counted, and I want to tell you right here how I counted them. I had the queen clipped, so I caught her when she swarmed, then covered the hive with a sheet so no bees could go back into the hive. After I had caged the queen I put her into a small basket and hung it on a stick a little way from the hive (the bees had clustered on a tree while I was doing this); and when the bees returned they all went into the basket with the queen. I then shook the bees out of the sections (as I had already put the sections on), and made them cluster with the others that were in the basket. I then took out all the old comb with brood, and carried these to a new hive,

after shaking some of these bees off the combs, and getting them also to alight with those that were clustered, until I had 8 lbs. in the basket. Then I took a small wooden box that would hold about two quarts, and scooped into it a little over $\frac{1}{4}$ lb. of the bees.

Before they went into the hive, when hiving them I placed the box with the bees in it on the Little Detective scales that I bought of you. I had ready in my hand at this time a Lareese bee-escape; and when the bees had flown out of the box sufficient to weigh just $\frac{1}{4}$ lb. without the box, I clapped the bee-escape on the box so that no bee could get out without going through the escape right before my eyes. I then set the box on to a board, and by puffing a very little smoke in among the bees they were in a commotion, and very soon they commenced to march out through the escape in single file, and they came along just about as fast as I could count them, until they were nearly all out. Well, I counted 747 bees in $\frac{1}{4}$ lb., which would be about 3000 in a pound. Now, if there were 3000 in one pound, there would be in 8 lbs. 24,000, which were about all that the hive contained. There might be about one pound more that I carried with the brood to the new hive, together with the ones scattered about the ground and hive. This is about as large a swarm as I have.

Now, what I should like to know is, what becomes of all of the bees if the queen lays 3000 eggs per day, and her eggs all hatch into bees? Doolittle says that she sometimes lays more—4000 or 5000, I think. If she lays only 3000 eggs per day, in 21 days she would have 63,000 eggs and brood; and in 21 days more there would be that number of bees which are not able to fly much, so they would not die by wearing out their wings. Now, we will wait three weeks longer, and have as many more; and the first three weeks of bees would not be all dead yet; so we should have by this time something like 100,000 bees; that is, in a six-weeks' hatch we should have that number; and the fact is, we do not have more than a quarter as many. Wouldn't it be better to say that the queen lays on an average 1000, and seldom lays 3000 eggs? Or will some one tell where the bees go to?

Pomfret Landing, Ct., July 16.

[Years ago, from the most careful estimates we could make, not counting them one by one, we found that a pound of bees, not filled with honey, as is the case of bees just swarmed out, would aggregate between 4500 and 5000; that when filled full with honey this number would drop down to between 3000 and 3500. You see, you weighed bees that had come out with a *swarm*; and, of course, as they always do on such occasions, they filled themselves with honey to enable them to start building comb, and to leave enough rations besides to enable them to hold out until field-bees can bring in more. Your figures, then, would corroborate very closely those that were obtained by ourselves and friend Hasty years ago.

Along about that time I personally weighed

several large swarms; and the largest that I remember of weighed 9 lbs. Quite a number reached the 8-lb. limit. After they had been hived for a day or two, and had drawn out some comb, I weighed them again and found in nearly every case they had lost from 25 to 33 per cent in weight. This assured me that it was not in loss of bees but in loss of weight, due to empty honey-stomachs.

With regard to the number of eggs a queen may lay in a day, if I remember correctly none of the authorities, including Doolittle, have claimed that 3000 was the *average* per day, but that the queen was *capable* of laying that number. The experiment can be repeated by any one by slipping an empty comb of newly drawn-out foundation, or, better, partially drawn out, into the center of a populous colony. If all other combs are filled with capped honey and brood, and the comb just put in is the only one available for the queen, it is not an uncommon sight to see 3000 cells in this comb on both sides filled in twenty-four hours. Yet I believe that Doolittle and all the rest of the authorities will agree with you that 1000 would be a fair average estimate. If I am not right in interpreting Mr. Doolittle, he will please correct. While 3000 eggs seems to be the maximum, I think Doolittle may also be right in saying that queens may sometimes lay 4000 or 5000.—Ed.]

DO BEES POLLENIZE STRAWBERRY-BLOSSOMS?

SOME ARGUMENTS ON THE OTHER SIDE OF THE QUESTION.

By John Handel.

Hon. Eugene Secor says bees do not work on strawberry-blossoms, but would like to "take it back" if his statement can be proven false. The readers of the *American Bee Journal* agree with him, with but one or two exceptions—unless there are more, like myself, waiting to have their testimony expressed by some one else.

Now, I am so astonished at the conclusions arrived at from facts brought out by this question that I should like to bring the subject up before the readers of GLEANINGS, especially since friend Secor tries to clinch his argument or corroborate his statement by saying that wild strawberries were just as abundant twenty years ago, before a bee, either domestic or wild, entered his county, as now. Here on the Mississippi bottoms, where our bees are able to gather Iowa pollen, there are numerous wild bees gathering pollen from flowers of all kinds, especially those that bloom early. Some of the readers have undoubtedly noticed them as veritable little swarms hovering around the early pussy willow. Those small wild bees can always be seen working on the blossom of the strawberry, providing we look close (for some of them are so small that the naked eye will barely notice them as a bee). There are various sizes, however—some nearly as large as the domestic bee. They usually have a metallic hue or luster, but differ in color. Those little wild bees are very plentiful here, but I know nothing of their habits, except that they gather pollen. They are undoubtedly natives of this

country. Then why are they never mentioned by those who are trying to rob the carrier of nature's "long haul" egg-basket of its honor? They are surely distributed over a considerable area, else there would not be so many here, and so many varieties of them.

I have also seen the domestic bees work on the blossom of the strawberry—not always—neither do they on white clover or buckwheat, but probably one year in five. Here the strawberry blooms at a time when the bees can gather pollen from a dozen different sources; and unless frost, etc., destroy the buds of some, the bees choose that which is best or most abundant, and probably, therefore, neglect the strawberry. But this occasional or periodic visitation of flowers by the bees may be one of nature's wonderful laws. Stock-breeders are well aware of the fact that a certain amount of inbreeding is necessary in order to establish an improvement. Queen-breeders also try to imitate nature. After crossing choice individuals they are satisfied for a time, breeding in that strain until the type is a permanent fixture.

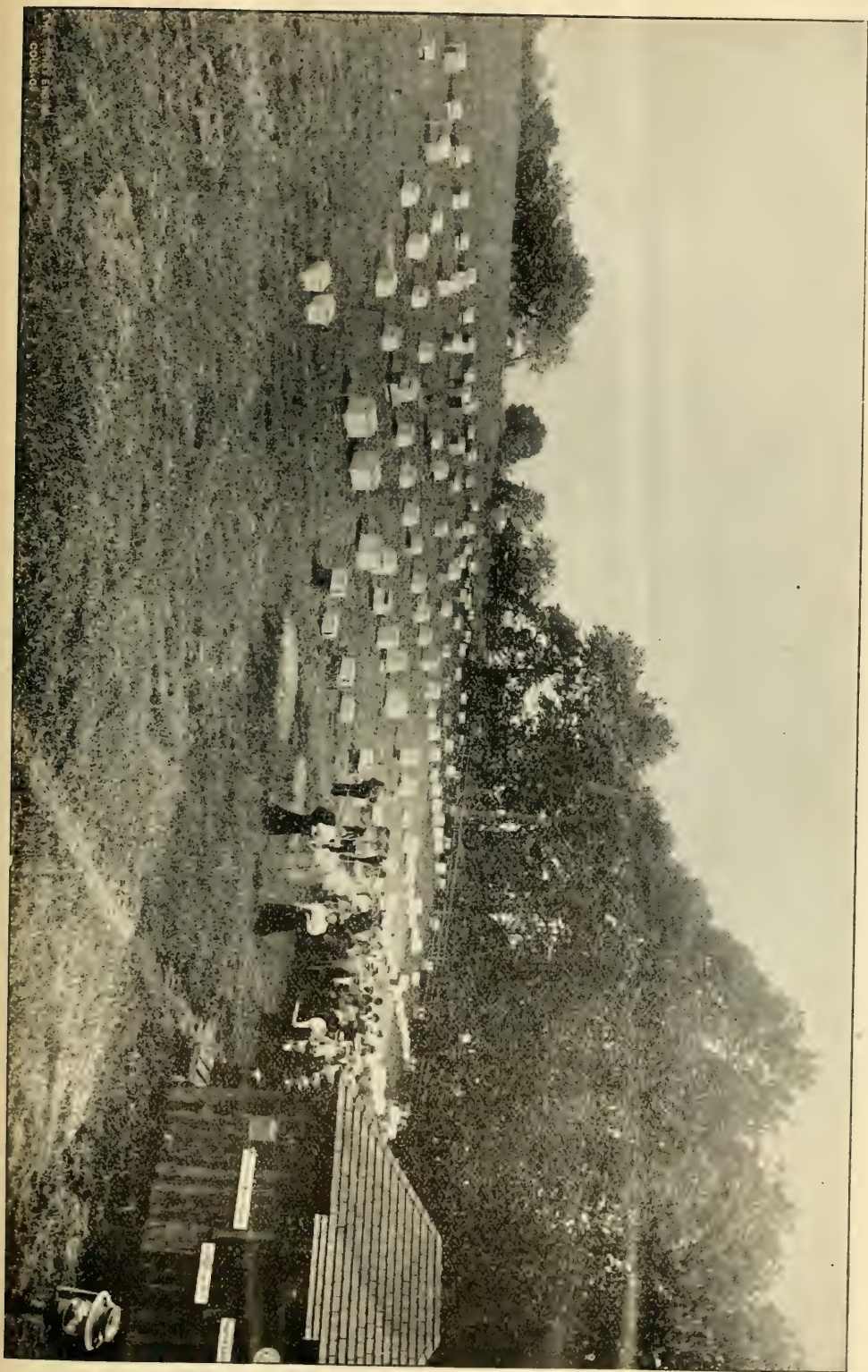
Last year bees in this locality paid little attention to white clover: just now what little there is left is in bloom, and but very few bees can be seen working on it; yet there is almost nothing else for them to do. Most of them are clustered outside of the hive, seemingly waiting for something to turn up. Now, if considerable seed is formed in those two crops of clover, would the fact that but few bees worked on it prove that bees do not pollenize clover? Bees work on the blossoms of buckwheat only after a dew; and unless the temperature drops sufficiently at night to leave condensed moisture on the flowers they are apt to blight, and no seed will form. Is it the wind, cold, or wet? or do bees pollenize the blossoms of buckwheat?

Savanna, Ills., June 17.

[One good witness to the fact that bees have been actually seen to work on strawberry-blossoms is worth more than a dozen claiming they never saw such a thing; but, taking it all in all, in view of what friend Secor has to say (and he certainly is fair and honest in what he says), bees do not in all localities work on the strawberry; and perhaps in localities where they have been known to do so it is only occasional.—Ed.]

THE PHILADELPHIA BEE-KEEPERS' CONVENTION.

The annual summer meeting of the Philadelphia Bee-keepers' Association was held at Woodcliff apiary of Wm. A. Selser, Jenkintown, Pa. The new trolley cars on York Road being open this year for the first was the means of bringing a large delegation from the city. The meeting was called to order at 2 o'clock by Pres. Henry Townsend. After welcoming the guests he gave a lecture on the general construction of the honey-bee, and its work, illustrated by several large charts that had just



been received by the association, from England. This was highly appreciated by the members, and was the means of getting a large number present to become deeply interested in bee-keeping. After the general business was disposed of, which followed the president's address, Mr. John Shallcross, of Philadelphia, read a very interesting paper on the relation of bees to fertilization of plants and flowers. This was followed by an address by Mrs. Thomas, of New York, who has been trying to get authorities to establish an apiary in Central Park, New York. She is now in Cincinnati, O., trying to interest authorities there in establishing a public apiary in their park.

F. HALMAN, JR., Sec.

Wyncote, Pa., June 13.

[Mr. Selser is one of the queen-breeders who has lately come strongly into prominence. He is an enthusiast on the subject of bees, and has done much to enhance the interest of the pursuit in and about Philadelphia. It is with pleasure that we show you one of his yards. Wyncote is simply a suburb of Philadelphia.—Ed.]

CAGING A QUEEN AT SWARMING.

POST-CONSTRUCTED QUEEN-CELLS: SECTIONS AND TIERING UP: QUESTIONS OF A BEGINNER ANSWERED.

By Dr. C. C. Miller.

A correspondent writes:

I have six colonies of bees, in which I take great delight; but on account of poor health I desire no increase. So when the bees swarm I have practiced the plan given on page 69 of "A Year among the Bees." Cage the queen; in five days, cut out queen-cells, and, five days later, cut out cells again and liberate the queen. Last year the plan worked like a charm. This year it failed in one case. The swarm issued May 3, and I caged the queen and put her where the bees could care for her. May 8 I cut out queen-cells, and May 13 I cut out queen-cells and liberated the queen. May 30, or 17 days from the time I liberated the queen, the swarm came out again. Knowing the queen was clipped I was in no hurry to cage her; but in a moment I saw the queen rise, and fly among the bees in the air. Then I knew it was not my old queen but a young one. On examination I could find not a sign of a queen-cell left in the hive; and how could they make a queen-cell with no eggs or young larvæ? and why should this last queen leave the hive with no sign of a queen-cell in the hive? It was impossible for this young queen to be fertilized, as she could not have been old enough. If I kept her in the cage she never could be fertilized. Please explain the case and say what you would do. J. S. F.

I don't know for certain; but I can at least give a guess as to one way. You cut out queen-cells May 8, and the bees immediately started a lot more. May 13 you cut them out again, but this time one escaped your notice, for these post-constructed cells are sometimes exceedingly difficult to detect; and somewhere about May 20 a young queen hatched out. May 30

she flew out to meet the drones, and the bees flew out with her. Possibly if you had left the swarm alone it might have returned to the hive; and yet, bees are freaky things, and you never know for certain what they may do. In any case, I don't think I would cage such a queen, but just return the swarm to the hive, and I don't think you would need to return it many times before the bees would settle down to business and give up their foolishness.

SOME QUESTIONS AS TO WORKING FOR COMB HONEY.

I believe you make a specialty of comb honey. This I have been doing on a small scale, and desire a little information to offset my inexperience. I should be obliged if you would answer my questions in GLEANINGS.

1. What style of section do you think the bees work most easily in? I am using the "three opening;" but this debars me from tiering up, and I thought it might be advisable to change.

2. Do you advocate "tiering"?

3. Do you use the eight or the ten frame hive for section honey? Mine are ten-frame, as I thought that I could contract a ten-frame but could not expand an eight-frame hive. W.

1. I don't believe the bees care such a wonderful sight what kind of sections you give them; but I suspect that, if they expressed a preference, it would be for that which comes the nearest to a regular brood-frame. The reasons in general for using one kind of section in preference to another are because we want what will suit the convenience of the bee-keeper, and especially what will suit the demands of the market. For these reasons the $4\frac{1}{4} \times 4\frac{1}{4}$ section is very popular. As to the width of the section there is not so much agreement. The tendency seems toward a narrower section than that which was at first used. I think nearly every one used them $1\frac{1}{8}$ at first; but at present there are in use sections $1\frac{3}{8}$ wide, $1\frac{3}{4}$, $1\frac{1}{2}$, and I think there are some who use $1\frac{1}{4}$. Before answering this question further I will anticipate the answer to your second question by saying that I would not have a section that would not allow tiering up, so I would not have a section without open top. Mine are open top and bottom. I have tried them with open sides, but could discover no particular advantage, with the disadvantage that they are not quite so safe from marring in handling.

2. I practice tiering. I think we can not well get along without some way by which we can give the bees additional room without waiting for them to finish entirely what sections are on. If sections have closed tops, and are placed on top, there can be put on, at one time, only a single tier. With a hive no larger than ten frames this will allow only 28 to 32 sections, and a strong colony will easily work on more. Then when they are nearly finished there will be a loss of time when the bees might just as well be filling up some fresh sections. With a strong

colony and a flush harvest I should want at least 40 one-pound sections on at once.

3. I used ten-frame hives, and then cut them down to eight frames. If it were to do over again I would try side by side the two sizes before changing them all. If you will contract half your hives to eight frames, and then run the two sizes side by side for two or three years you will be able to come to some decision. I'm obliged to confess I don't know which is best.

Marengo, Ill.

RAMBLE 137.

IN CALAVERAS COUNTY.

By Rambler.



WHEN we were passing through San Francisco we learned from a reliable source that Bro. Pryal,

our genial fellow-traveler, had also made his escape from the siren of Eureka, and returned, via steamer and seasickness, to his home, and was, with greater assiduity than ever, engaged—to the Oakland Waterworks. Our informant stated that, every Saturday afternoon, our fisherman friend would be found at the artesian wells of the waterworks, angling for bites. Of course, we judged that our informant was joking, and in this way wished to convey the idea that our friend had not lost interest in piscatorial sport, even in the business whirl of a great city. Our informant also said that our jovial friend Jones, the gasman, was about to move his bees and his household goods to Sonoma Co., where bees, hogs, and poultry would distract his everyday life.

In order to have a little more spice to our journey, the fates conspired to run us into a political whirlpool in Stockton—bands and banners, torchlight processions, rockets and fireworks, and thousands of people, shouting themselves hoarse just because the Democratic candidate for governor had arrived. We did not allow the political furor to have much effect upon us. We moved out of the city due east toward Calaveras Co. A treeless and dry country intervened for a good share of the distance. Dwellings were miles apart, and there was no sign of taste and adornment in their construction, neither were the surroundings adorned with trees and shrubbery. A rough board cabin, without a shade-tree, a rose-bush, or a bee-hive near it, is about as lonesome and desolate a place as one can imagine. Water here was drawn from wells 230 feet deep. It required a considerable rigging and a stout horse to haul up a barrel of water. The horse traveled in a circle, operating a large drum set upright, and the rope was wound upon this. The liquid

was so valuable that the owner preferred we should get water for our ponies further along. In Milton we found liquid of all kinds plentiful. It appeared that every other building upon one side of the street was a saloon, and there was considerable stir here. This is the terminus of the local railroad from Stockton. From this point freighting into the mountains is performed with those big wagons, and all the way from four to twelve horses.

We were now approaching the great mining regions, and continually met that class of men, typical of the mining industry.

After leaving Milton we had another lonely stretch of road through a slightly wooded and hilly country, and it was upon this road that Black Bart and Smiling William worked at the industry of highway robbery. The stage over this route used to carry much gold from the mines, and at such times it was a tempting object to these bold fellows. Owing to the many lurking places for robbers, the gold route was changed to a more open country to San Andreas, so we were not a particle afraid of robbers. We knew well enough that if we were held up the robbers would gnash their teeth in disappointment when they saw the leanness of our purses.



MR. E. H. SCHAEFFLE AND FAMILY.

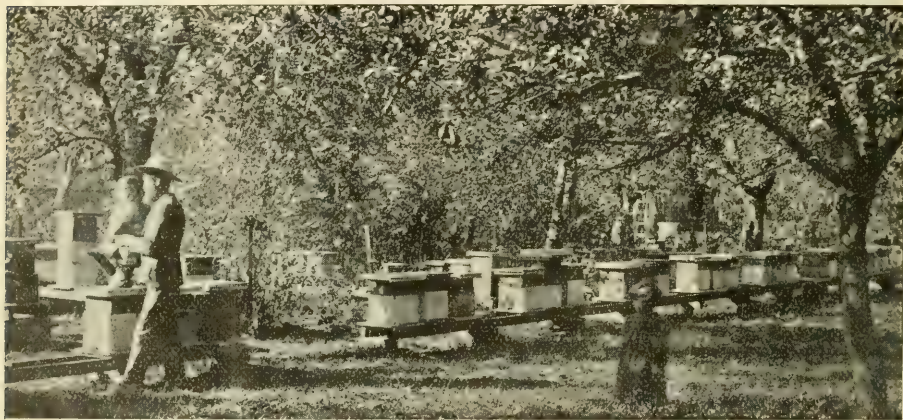
Angels' Camp is one of the most prosperous mining towns in California; but we halted here only one night, and worked slowly next day up the hills to the town of Murphy. I had for some years had a very pleasant pen-and-paper acquaintance with a bee-keeper here; and he had written me so many valuable kinks in the art of cooking that I felt a wondrous "fellow feeling," and thought that here we should find a

fellow-bachelor, but were disappointed. The half-tone will show the style of bachelor we found; and here allow me to introduce to the GLEANINGS audience Mr. E. H. Schaeffle (Shelfle) and his wife and baby May, Clarence in front, Ernest and Marian in the rear, and Nellie at the right. Mr. S. and family live within the city limits. His lot of a few acres is bounded upon all sides by streets. The cozy house, honey-house, and the apiary, are embowered in a luxuriant growth of fruit-trees, vines, etc. In this well-utilized space there are 135 colonies of bees; and, though near a much-traveled highway on either side, they do not seem to molest travelers to a vexatious degree.

Mr. S. uses the Gallup frame, and produces comb honey, using a section which holds 1 $\frac{1}{4}$ lbs. of comb honey, or thereabouts, which he sells for 25 cts. each. The honey is all sold in the home market, which includes several min-

to each side of a comb for rapid uncapping. Mr. S. had a very good idea, however, along with his uncapping, and not confined to the bread knife. He uses hot water, as many others do, into which to dip his knife. The water is used in a two-gallon stone crock. If the water is put in boiling hot the crock will hold the heat for a long time. Select a crock upon the edges of which there is no enamel. If there is, file it off. Now, when the knife is removed from the crock, draw it across the edge of the crock as you would across a whetstone, and the edge of the knife is kept as keen as a razor, which is no small item in uncapping.

The honey flora in this vicinity consists of fruits, manzanita, buckeye, coffee-berry, a sprinkling of sage, and the blue tarweed. Tarweed is held in contempt by bee-keepers generally in other portions of the State, for it yields a dark honey with a bad flavor, and thus in-



MR. SCHAEFFLE'S APIARY, FRUIT AND BERRY ORCHARD.

ing towns outside of Murphy. The extractor is used sparingly; and upon my first glimpse of him, on the 7th of November, he was extracting honey; and, although the honey he was extracting was from combs he was transferring, a portion of it was new honey; for at that late date the bees were busily at work storing honey.

A VALUABLE KINK IN KEEPING UNCAPPING-KNIVES SHARP.

Mr. S. preferred a common bread-knife to uncap with, and practiced the economical cut. With the broad point of his bread-knife he would take off a capping about as large as a silver dollar, and then wipe his knife; then another dollar size is slashed off, and another wipe. It will be seen that his preference for the bread-knife over the Bingham is from the limited amount of extracting done. If Mr. S. had several hundred combs to extract per day I have no doubt he would be obliged to adopt a trowel-knife, and work the up-and-down cut

tures by admixture not a little of the better grades of honey. But the blue tarweed of Calaveras Co. gives a fine white honey, with a flavor that would please the most fastidious taste; but for all that it has a fault here—it soon granulates in the comb after removal from the hive. Mr. Schaeffle had any quantity of as white comb honey as will be found anywhere; but it was solid, and practically unsalable in that shape; and in this case, unless the honey can be sold immediately, it should be extracted.

Robbing is a severe affliction here. Mr. S. said that, when robbing commences at one end of a row of hives, unless he was there to prevent it they would follow up and clean out every colony in the row. Eternal vigilance is a necessary qualification of the bee-keeper. Sometimes he could prevent robbing by going along and "tickling," as he termed it, the bees at the entrance of each hive with an asparagus-bush. This sort o' stirred them up and put them on the defensive. His best remedy, how-

ever, was a block of 3x4 joist long enough to cover the entire entrance clear across the front of the hive; in the center of this, and on the four-inch side, a notch was cut just large enough for a drone to get through. This, placed before the entrance, would usually cure.

Mr. Schaeffle had also much trouble with brood in his sections. "Queens persisted in climbing above and filling a whole super with brood; and this habit was not indulged in by one or two colonies, but nearly all of the 135. It became a serious matter with him; and, to save his honey crop, the adoption of queen-excluding honey-boards became a necessity. Mr. S. showed us a large number of filled sections that had been spoiled by this pernicious habit of the queen. As there is but little complaint among comb-honey producers in this direction, Mr. S.'s case is exceptional, and rests, perhaps, on the fact that his 1 $\frac{3}{4}$ -pound section holds a comb about the same thickness as a brood-comb, so the queen more readily enters the super.

The best yields in his apiary have been 250 lbs. of comb from one colony. Our friend was busy with his bees, his honey, and his wax. The latter was rendered out upon the kitchen-stove. I admired the forbearance of Mrs. Schaeffle over the little drops of wax that would get upon the floor, and especially when the five-gallon can of wax boiled over upon the hot



stove, and the flames ascended to the ceiling. Ernest ran in with a pail of water; but Mr. S. was ahead of him with a broomstick. Running this through the bail of the can he made for the door with it. All went well until upon the veranda, when a little tilt of the broomstick allowed the can to slide off, and the wax was nicely spread across the veranda floor. These little mishaps are what every bee-keeper experiences more or less, and are admirably adapted to test individual patience; and I am happy to say the Schaeffle family viewed the

matter serenely, and scraped the wax up carefully, and we all rejoiced that the conflagration went no further than the wax.

RAMBLER'S VISIT.

SOMETHING ABOUT "CHINESE TEA."

By E. H. Schaeffle.

I was busy uncapping, when the door of the honey-house opened and the liberated bees rushed out past the face of a grave-looking stranger. As he did not flinch I remarked, "You are no stranger to bees?"

"No," he replied. "I am sometimes called Rambler."

In a few minutes I had met his companion, Wilder; the team was turned in on the grass; Rambler was then made at home, and the boys hung up with me for almost two weeks. Some of you who have been favored with only a "drop in" from them may wonder how I managed to hold them so long. Well, to be honest I played a very small part in it. Wilder, who is a very bright rustler, thought he ought to brush up on some of the rudiments of his education, and, meeting an old lady friend from New Hampshire, who is now engaged in a neighboring town in teaching the young idea how to shoot, put himself under her tuition, and it took some time to complete the course of study. Though he declares she is "all wool and a yard wide," and Rambler—well, now I am as much of a Rambler myself, and he may come back at me if I give him away; but this is the only chance that I'll have at him; so, here goes.

Rambler, like A. I. Root, is a strict teetotaler—so much so that he declined my wife's mince pies; but—oh that "but"! At Angels he handed over his linen to a Chinese laundry; and on going for his wash the "heathen Chinese" handed Rambler a cup of tea. Now, Rambler had frequently heard of the excellence of Chinese tea, and so took it down at one long deep swallow, when he discovered it was—brandy! Coming home, Wilder and myself found our overcoats very comfortable; but Rambler refused to put his on, and gave as a reason that he had his overcoat inside of him, and was very warm.

This was not the only experience here, for the Rambler fell an easy victim to the smiles of a native daughter whom he persuaded to allow him to photograph; but the honor, and the nearness of Rambler, so overcame her that the smiling Betsy could not control herself, but rocked to and fro, and smiled and smiled. Rambler persists that the photo does not do her justice, and refused me a proof; but Wilder proved more susceptible, and so here it is. Let all the Eugenias look and wail.

While here we discussed the bee business in every phase. The prevention of granulation in honey and the clarification of dark honey we found could be accomplished; but each process

required heat, and so all were voted no good. A motive power for extracting was canvassed. Rambler suggested a weight with sprocket-chain, to draw up and let it run down while the operator was uncapping. My suggestion was the wheel and treadle of a sewing-machine, placed under the uncapping-table; from this, and to one side of the operator, a belt running to the extractor, back of and to one side of the uncapping-table, thus making it possible to uncup and extract all at the same time, and keep a perpetual motion, as it were.



SMILING BETSY.

About a year ago I designed a hive holding 12 Hoffman frames, each $6\frac{1}{2}$ inches deep. This, Rambler thought, would work finely in this section. I showed him sections that had been filled to the last cell with brood; but this was an old experience with him, while old with me. It is not desirable, as I lost all of my first crop of honey and close on to 100 stands of bees by the queens laying eggs in all the supers, and some of the hives had three and four cases. Nevertheless, I had about $2\frac{1}{2}$ tons from eighty stands, spring count. While Rambler was here a postal from S. L. Watkins, of Grizzly Flats, El Dorado Co., arrived, stating he would soon be here, and that his best swarms had given close on to 500 lbs. of honey, and were still at it on the day he wrote, Nov. 12th, so that, while Rambler and Wilder have found it necessary to drive all over the State to work off their blues over the total failure of the honey crop in their section, we in this neck of the woods not only do not have to feed, but are fed in this off year by our bees.

From here the migratory bee-keepers, Wilder and Rambler, drove directly home, a distance of 500 miles, which is counted a small ramble by these old perambulators. That their next ramble may bring them this way is my wish.

Murphys, Cal., Nov. 19.

WOOD-BASE FOUNDATION.

DO BEES GNAW IT DURING A DEARTH OF HONEY? COMBS BREAKING DOWN, AND THE REMEDY.

By J. B. Locken.

What time has not been devoted to gospel work I have spent with my bees, making many various experiments with the Schmidt & Thiele brood foundation, hoping by personal experience to ascertain its value.

As soon as it came to my notice I secured several pounds; and while I was stimulating my bees by feeding, preparing them for early artificial swarming. I gave some colonies full sheets of wood-base foundation, placing it in the middle of the brood-chamber. The bees drew it out very nicely, and it was soon filled with solid brood. But one difficulty that I soon discovered in the use of full sheets was that it warped at the bottom. I think the reason for that is, the bottoms of the frames are exposed to the damp air and the moisture of the bottom-board, after the rain, and also because it is near the ground. To remedy this evil I tried half-sheets with better result; but still this did not work to perfection. There was yet room for improvement.

The first of June I formed a number of two-frame nuclei. They now cover about six frames. In these nuclei I have used half-sheets and a third part of a sheet, the latter with most excellent results. I have carefully examined every frame in which I used veneer foundation, and can find only one frame where the bees have gnawed the wood base.

If the white clover would give us a yield for the bees to store honey, I do not anticipate that they would stop to gnaw the "wood base," but would soon have it covered out of sight. But the prospect of a white-clover crop is not encouraging. The clover is abundant and in its height of bloom, but it does not seem to secrete any nectar.

My bees have stored some honey from the small-fruit blossoms, and during that time my nuclei built up and drew out these combs.

□ I do not yet know what notions the bees may take during the cold and damp seasons of the year, as early spring and late fall, when they have nothing to do but gather propolis, and fill up every crack and crevice. I have seen them gnaw large holes in the combs, at these seasons of the year, when I couldn't see any reason for it, except that they didn't want to be idle, for the honey-bee is the very model of industry. Should I run my bees for extracted honey, or expect to move my bees about from one location to another to obtain the benefit of various honey-plants in their season, to prevent the breaking-down of combs I would use veneer foundation.

Several years ago I worked in an apiary of 300 colonies, divided in two yards. From the

home apiary we moved 100 colonies for basswood, of which they gathered 11,000 pounds. As soon as the basswood-flow ceased we moved them again, a distance of about 25 miles—this time on the prairie, for horsemint, which gave an abundant yield that fall. We extracted about 8000 pounds of that.

The second move we made, we were so unfortunate as to have from ten to fifteen colonies break down. I do not remember the exact number. It was a very warm and sultry night, and the roads being rough helped to bring about the sad result. The colonies that broke down were nearly all in Langstroth hives. The Gallup hives came through all right. In cleaning up the broken down hives I noticed that all the combs that had broken down had simply dropped out of the frames, leaving from $1\frac{1}{2}$ to 2 inches of comb fastened to the top-bar. If these combs had been built on wood-base foundation I do not think they would have broken down.

As is nearly always the case, the queen very seldom lays eggs in the top cells near the top-bar, but always leaves a space where the bees usually store honey. As a result, that part of the comb, where all the weight comes, is the weakest, as it doesn't become tough, like the rest of the comb, by breeding. If the combs break down in moving, extracting, or handling, they usually break near the top-bar, where the honey is stored. To prevent that difficulty I am quite confident that the use of a half or a third sheet of veneer foundation would remedy all the defects in that line. It would also keep the combs from sagging as much as they do with a full sheet of common foundation, and there would be no hindrance in cutting out queen-cells.

Now, is there not some way by which a third of a sheet of wood base could be made in with the full sheet of foundation, so if one should desire to put in full sheets and have one-third wood base, it could be done? If that could be accomplished, the question would be solved. There would be no risk to run then, nor fear that the bees would gnaw the foundation in drawing it out. It would prove an advantage in every way, and perhaps the wood base would at last meet the long-felt want of a foundation that would not easily sag nor break down. The use of one-third sheet has proven satisfactory to me. I have as fine a lot of combs in my yard, drawn out on that foundation, as I have ever seen. Further experience will reveal its value; and it may become true, as the editor has already remarked, that "old things that have been discarded and declared valueless in the past have come up again, and demonstrated that there is something of value in them after all."

New London, Wis., June 26.

[Experience years ago showed that bees occasionally show a decided dislike to the

wood in foundation; and during a dearth of honey they would, as you say, here and there gnaw down patches of comb down to the wood. The increased expense, and this propensity on the part of the bees, compelled us to adopt wires instead. Wiring is very cheap; it secures the sheets of foundation firmly in the center of the frames, and, when drawn out into comb, never breaks down. But I must say, on the other hand that I have seen some of the prettiest combs built from wood-base foundation that I have ever seen. I think we have a few of them yet.—Ed.]

POOR SEASONS FOR TEN YEARS.

A DISCOURAGING OUTLOOK: WILL IT ALWAYS BE THUS?

By John Murray.

I should like to get some more goods, but the bee-business has been so poor I can't afford it. It used to be around here so that, one year with another, a colony of bees would average 100 lbs. per annum; but the last good year was when A. I. Root was here (1889). We used to get fall honey nearly every year. When Japanese buckwheat first came around I got \$2.00 worth to get my neighbors to grow it; but I don't think I got \$2.00 worth of buckwheat honey since, although it has been grown close by every year. Now we are in the middle of the basswood bloom. Other years it commences to bloom about the 9th of July. The first tree I noticed in bloom this year was on the 24th day of June. The nights are so cold that light frosts formed in the hollows on the 28th of June. Bees have made no honey to speak of, and they are weak, and on an average have not over half as much brood as they ought to have at this time, and drones are very scarce. It is a sign of queenlessness to see them around. My bees made a little honey on basswood last week, but not sufficient to whiten the combs. The dry weather in the spring killed the white clover, while the sumac and some other plants that had their leaves frozen, and bloomed out again, will be late, so there is a chance yet. There is certainly so much bloom here in summer time that, if the conditions are right, we shall get honey any way.

There seems to be a great change coming over this country. We don't have the thunder and lightning we once had. The springs are all drying up, except the deep ones. I don't think the creeks or the Wisconsin River is over half as big as it was, and it is the same all over the West. Thousands of lakes and ponds that had fish and muskrats in them are dried up, and flax is grown in their bed; and so large a stream as the James River, in Dakota, is so low it can be waded almost anywhere. That is what I am told; and if this drying-up process goes on as fast in the next thirty years as it has in the last, I would not give much for this whole section west of the Dakota Lakes.

Woodman, Grant Co., Wis., July 1.

[But, friend M., it has not been ten years since I made that pleasant visit through Wisconsin. It is true, we have had more drouths than usual for several years; but it is not very long ago that our seasons were so wet, especially the fore part of the year, that people really longed, and perhaps prayed, for the ground to get dry enough to work as it had been in the good old times.—A. I. R.]



REARING QUEENS TO ITALIANIZE AN APIARY.

Question.—My bees are all pure Italians, and all my neighbors for miles around have either blacks or hybrids, so that it is impossible for me to Italianize my bees, the neighbors' bees being all kept in box hives, and therefore having a great many drones in the summer season. How can I, in rearing queens for my own use, secure them purely fecundated? and what would be the best time of the year to rear such queens?

Answer.—There are several ways of doing this, nearly all of which I shall speak being used by myself to a greater or less extent during the past twenty-five years. A good and practical plan is to give to all of the colonies, which have good Italian queens, one or two frames of drone comb, so that large numbers of drones will be reared in your own apiary, which will be very likely to secure the pure mating of one-half or more of your queens; and when one is found that is impurely mated, kill her and give the colony a queen-cell from your pure breeder, and try again. As your colonies increase, your drones will increase also; and the more drones reared in your Italian colonies, the better will be your chances of having all purely mated.

The next plan would be to give capped brood to your drone-rearing colonies early in the spring; and this, together with a little warm feed given each day, will cause the desired queens to lay in the drone comb early, through the stimulation given, thus giving you strong colonies with plenty of drones, before your neighbors' colonies rear any drones. As soon as any drone brood has been capped from three days to a week, start to rear queens, and in this way you will have your queens ready for the first drones which appear. The main objection to this plan is, that such rearing of queens comes at a time when it is likely to interfere with your crop of honey; for in all queen-rearing the colony is thrown out of its normal condition; and whether the old queens are taken away from their colonies to give place for queen-cells desired, or nuclei formed to take care of these cells, this interference comes at a time when all should be booming as much as possible along the line of rearing the laborers (bees) in time for the honey harvest, which, as

a rule, will be from 30 to 50 days ahead. I am one of those who believe that impure stock, with a good yield of honey, is to be preferred to pure stock and little surplus honey.

Another plan is, to wait till fall about rearing queens, when, if you can preserve the desired drones till all your neighbors' drones are killed off, you will have every queen to mate with the drones you desire. To preserve drones, gather all the drone brood you can find in the apiary from the queens you have decided shall be drone-mothers, and mass this brood in one hive, tiering it up, if necessary, to accommodate this brood and lots of honey; for, the larger the hive and the more honey it contains, the better your chances of having the drones preserved in large numbers. When this drone brood is massed, the queen should be taken away from the colony; and as often as a new queen commences to lay she should be taken away also, and this colony kept supplied with sufficient worker brood to keep it in a prosperous condition, so that it will not be robbed of its honey on account of fewness of bees to guard and care for it. If you wish that all the drones which your queens mate with shall be strong, robust fellows, on some cloudy day (when it is not so warm that you will be troubled with robbers, nor so cold that the bees will gather in bunches to keep warm) look this hive over and hand-pick the drones, killing all which you think are not such as you would desire. To best do this, take out the first comb and pick out as above, when it is to be set into an empty hive, set on the stand originally occupied, and thus when you have gone over every comb, and the drones clinging to the sides of the hive and bottom-board, your colony is just where you want it, without any extra handling of the frames. You are now sure that every queen will come as near perfection as is possible along the line of right mating; and were it not that this plan requires much extra work and care in feeding the queen-rearing colonies, that fairly good queens may be reared out of season, and, also, that this late manipulation of colonies forfeits our chances for successful wintering, I should say that this was the plan above all others to secure purely mated queens. But with all of these drawbacks, I have thus reared queens which proved of great value to me.

Another plan is to take a hive containing our best hand-picked drones to some locality isolated four or five miles from other bees; and, as often as may be, take a load of nuclei, supplied with queens from our best mother, they being from three to five days old, to this isolated place, leaving them there from eight to ten days, when they can be brought home with laying queens, which will, as a rule, be all mated with the desired drones. With a proper rack fixed on any light spring wagon, from 12 to 25 can be carried to and fro at one time, so

that this is not as laborious as it at first appears, and it has this advantage: our queens can be reared at a time when nearly every queen will be perfection itself, all being reared in the height of the honey season, when the best queens can be reared with the least work.

Still another plan is to rear the queens and drones in the best part of the honey season, and, when ready, take the drone colony, and as many of the nuclei as have queens of mating age, to the bee-cellar at about 11 o'clock A. M., and leave them there till 4 P. M., when they are to be brought out and allowed to fly, after all other drones have ceased flying for the day. If each nucleus and the drone colony are fed a little diluted sweet just before setting out, and the hives set facing the sun, queens and drones will fly the same as they would were it three hours earlier in the day. If you have no cellar handy, the bees can be confined to their hives for the five hours spoken of, if ample ventilation is provided, when the result will be the same.

But after a trial of these I have come to the conclusion that, for the practical bee-keeper, the first plan is the one to follow; and, let me whisper in your ear, the mismated queens which you will get by this practical plan will give you just as good results in honey as will any of the purely mated queens; and *honey* is what the average bee-keeper is after. What the average bee-keeper wants is one or two good pure Italian queens to rear his queens from; then let them mate as they please; and let me assure the reader that such a mode of procedure will give perfect satisfaction so far as honey-gathering is concerned. Of course, it will be necessary to have a good queen to rear stock from every two or three years, else we shall soon run into a race of bees we shall not be satisfied with.



THE STEPHENS FEEDER.

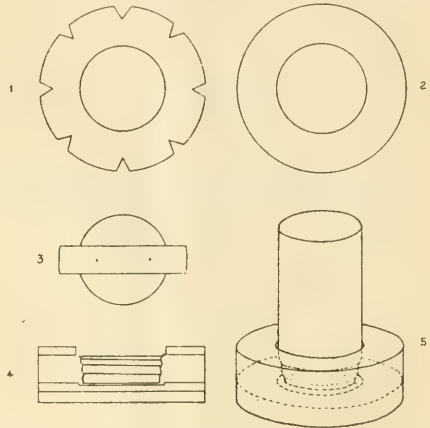
A FULL DESCRIPTION OF IT.

By Geo. W. Stephens.

Last fall I had 23 colonies of bees to feed; and, not having feeders enough, and having waited in vain for a fall flow of nectar until I thought it was too late to send for more feeders, I hastily made some which I found to work satisfactorily; in fact, I like them for many reasons better than any other feeder I have ever seen or tried. I mail one to GLEANINGS and will also try to explain to its readers how it is made. It is not patented, and any one who is handy with tools can make them. They

could be sold so low that it wouldn't pay one to make them for himself.

Take a piece of board $\frac{1}{2}$ inch thick, and saw it in the shape of a Bland dollar, but five or six inches in diameter; then cut eight notches, equidistant, around the edge, about as large as a $\frac{1}{2}$ -inch auger-hole; and with an extension bit bore a $3\frac{1}{8}$ hole $\frac{1}{4}$ inch deep. See Fig. 1.



Get another piece of board, which may be $\frac{3}{8}$ thick, and cut it the same size as the first one; but saw out from the center a piece $3\frac{1}{4}$ inches in diameter, as in Fig. 2. Save the small piece, and nail a cleat across it, as it will make a handy cover when wanted, as in Fig. 3.

Use basswood, because pine and some other kinds of wood seem to give the bees a bad taste in their mouths, and they do not take the syrup down quite so readily. Now get a strip of tin two inches wide, and long enough to encircle the pieces and lap about $\frac{1}{2}$ inch. Nail it around the first piece so that about $\frac{1}{2}$ inch of the strip will project on the under side. Nail the second piece flush with the upper edge of the tin. Take a Mason glass jar, either a pint or a quart; knock the glass lining out of the cap, and make a few perforations close to the top of the cap. Don't make the perforations too large; the size of a common knitting-needle is about right.

Now your feeder is finished, and it is a good one. Spread a piece of burlap over the brood-frames, with a hole cut in its center 3 or 4 inches in diameter; set the feeder over the opening; fill the jar with syrup, or sugar and water; invert it and place it top down in the feeder, as in Fig. 5. Put on an empty hive-body, and spread over the bees around the feeder pieces of carpet or any thing that will keep the heat of the cluster in. Some might prefer to use a board with an opening in it instead of the burlap. Those who prefer to feed sugar and water instead of syrup will find that, by putting several pieces of flannel or other material in the mouth of the jar before screwing on the cap, they will get the percolation principle to per-

fection. Two or more feeders may be placed on the hive at one time if it is desired to feed faster. The feeder is sufficiently deep so that the jar will not tip over, and every thing about it is close enough to prevent the escape of the heat of the cluster. Another advantage is, the jar being glass, one can see when it needs refilling, without taking it up, which is impossible with a tin can or crock. I call it, for short, the Stephens bee-feeder.

Dennison, Ia., Jan. 24.

[This came some time ago, as will be seen above, but was overlooked, and hence we produce it now in anticipation of fall feeding.—ED.]



SCARCELY ANY WHITE HONEY.

We are getting scarcely any white honey in this section, and it is so dry we fear we shall get but little dark honey, as the buckwheat will be a failure unless it rains soon. D. COMPTON.

Troy, Pa., July 19.

THE FIRST FAILURE.

The honey season is now so far advanced that I am able to report to a certainty a total failure—the first in a lifetime. E. E. EDWARDS.

Alexandria, Ind., July 15.

ONE OF THE WORST SEASONS EVER KNOWN.

I have been in the bee-business for several years, and this is one of the worst I have had. The spring frosts cut off the bloom, and, followed by dry weather, left the bees in bad shape. I have not had a swarm, neither have I taken any honey, and shall have to feed soon to keep them living. I have about 40 stocks.

R. W. BURRELL.

Caledon East, Ont., July 19.

MOST UNFAVORABLE SEASON.

We are having the most unfavorable season here that we have seen in more than 30 years. All kinds of fruits were killed here by the succeeding frosts, commencing May 13. We have had but very little rain since the frosts. Meadows are yielding less than a quarter of the usual crop of hay. Pastures are dried up. I am feeding my cows hay and grain daily. Money is tight, and many men are out of work. I have ten colonies of bees which had to be fed until chestnuts bloomed, to keep them alive.

D. H. ODELL.

North Collins, N. Y., July 15, 1895.

UNPRECEDENTED DROUTH, AND HONEY FAILURE.

We have here a season of unprecedented drouth. It is a tough one for farmers, and a dollar does not grow on every bush this year. Rainfall at my place, since the first of February, has been only 7.1 inches, whereas in ordinary seasons the average for the corres-

ponding period is about 18 inches. It is a sandy region here, mostly, and the ground is like dry ashes to a great depth. Forest fires have been running fearfully. Hay and oats are dried up; and even apple-trees, two years from setting, show symptoms of dying. I doubt whether there is a ton of good clover within two miles of me. I have but two new swarms of bees, which came out early in June, both from one hive. A dozen others have not swarmed at all, and they are laying in little or no surplus honey. Sweet clover is the only grass that still looks green and bright under the heat and dryness. But corn thus far is growing finely. Buckwheat has no sweetness.

Muskegon, Mich., July 18.

A. BAXTER.



Bees are doing well at present, but we are needing rain very much. R. B. LARKIN.

Patronville, Ind., June 15.

Bees in this part of the country are doing better this season than they have for several years. MRS. J. N. HEATER.

Columbus, Neb., July 12.

Bees are doing fairly well—have made about two tons of honey so far. H. T. GIFFORD.

Verona, Fla., June 4.

Bees are booming—commenced swarming June 1. Total loss wintering and springing, 15 per cent. I have now 90 colonies.

CHAS. M. WELSH.

East Galway, N. Y., June 3.

The bees are doing well this season for the first time in three years. Our box-hive friends have had no surplus honey at all for three years, but are getting very good yields.

Brownsville, Tenn., June 3. S. H. CLARK.

ENCOURAGING FOR CALIFORNIA.

The honey in Southern California is very fine in quality this season. I have not seen it better in twenty years. A. P. HERRICK.

Campo, Cal., July 9.

HOPES REVIVED.

The heavy rains of this week will bring on the blessed heartsease. We got 1000 lbs. from 23 stands last year, after this time; so our hopes are revived. W. M. MILLER.

Joy, Ill., July 19.

DONE WELL.

My bees are doing well; have increased twofold, because I could not attend to them, but yet are making considerable surplus.

E. G. HEDDING.

Paw Paw, W. Va., July 18.



ALTHOUGH honey is coming very slowly, as intimated elsewhere, from sweet clover, we are compelled to use a tent while working with our queen-rearing colonies.

FOR the first time in several years we have been enabled to fill almost all our orders for queens, from our own apiary. Our trade has not been less; but now that we have gone back to the good old-fashioned method of raising queens, it is an actual fact that we can raise *more* queens than we could by fussing with the new-fangled plans.

BEE-KEEPERS are now generally recognizing the value of the bee-escape. Here is one point in their favor, which I believe has not been mentioned before. Mr. O. R. Coe, an extensive bee-keeper in the Catskill Mountains, at Windham, N. Y., says this of them:

One of the most important uses of the bee-escape, and one that I have never seen in print, is the use of it in keeping out fresh thin nectar the day we extract, by putting on a bee-escape early in the morning, and never at night, as usually told to do; then if there is any uncapped honey it will have been evaporated (or boiled down) by the bees during the night.

THERE is every indication that the meeting of the next North American at Toronto will be an unusually large one; indeed, we always have good conventions over in Canada. It is thought there will be 300 or over in attendance, and half this is a fairly good number for the North American. Let the attendance, enthusiasm, and good will be big—yes, very big. There will be reduced rates on the railways, and unusually low hotel fare. See full particulars elsewhere in this issue, just after Stray Straws.

A COUNT shows that we have, all told, 365 colonies and nuclei, the larger portion being of the latter. The former will give us quite a little crop of extracted honey, but just how much we do not know. A little honey is coming in every day; and as the only thing the bees are working on is sweet clover, the honey will be largely of that kind. Sweet clover is beginning more and more to come in after the regular flow; and even if it does nothing more, it enables the bees to fill out the combs, especially sections nearly filled from clover and basswood.

CRIMSON CLOVER.

WANTED, information regarding the adaptability of crimson clover for bees. We already had an article in the Gardening Department as to when to sow. So much is being said of it in agricultural papers that we should like two or three articles from *bee-keepers* who have

tested it, and are in position to speak of its merits as a *honey-plant*. I am at a loss to know just whom to write to; but I am sure that, among our large family of readers, there are some who can stand up and speak. Hello! it seems the request has in part been anticipated. Here is what a bee-keeper has to say of it already:

I noticed the little clipping about crimson clover, in *GLEANINGS*. It's a great bee-plant, and comes so early it gets ahead of drouth. Every farmer and bee-keeper should buy it. It stands several degrees below zero here with no protection; in fact, we think, with Prof. Mossey, it is hardier than red; will also grow on poorer land, but land can be too poor for it. It should be sown early to insure its wintering; north, not later than last of August. Home-grown seed is much hardier. A. F. AMES.

Claremont, Va., July 18.

We want more reports from a large number, so that we can have a comprehensive symposium on crimson clover. And, while we about it, can some one send us a good photo of the clover? We have many artists in our ranks.

HONEY-CROP FOR 1895.

I WOULD call attention to Reports Encouraging and Reports Discouraging, in this issue. On account of the late frosts, and the drouths throughout the North especially, the honey crop, I am afraid from present indications, will not be even as good as last year; yet, as is always the case during poor seasons, some bee-keepers harvest good crops. I call to mind the case of H. R. Boardman, of East Townsend, O., whose bees, I understand, are fairly rolling in the honey. Neighbor Vernon Burt, a few miles north of us, has done well also. Neighbors Chase and Prince, while they have not had entire failure, have secured light crops. Our bees have done fairly. I am afraid the average, all told, however, from clover (comb honey), throughout the United States, will hardly approximate 15 lbs. per colony. Heartsease and sweet clover and crimson clover, in the North and East, will yield fairly well; and in California, especially in the southern part of the State, while their crop has not been as large as in some other years, it is considered good.

THE AMALGAMATION OF THE NORTH AMERICAN BEE-KEEPERS' ASSOCIATION AND THE BEE-KEEPERS' UNION.

ON page 489 we referred editorially to some excellent ideas put forth by the editor of the *Bee-keepers' Review*, and the matter is now being discussed in the leading bee-journals. There seems to be little or no opposition to the scheme, except from the General Manager of the Union himself; and his opposition is rather big, because he is a mighty man of valor. In the *Bee-keepers' Review* for July he has this to say:

I have carefully read the editorial in the last *Review* on the above subject; and while I fully agree with it as to the object to be attained, viz., organ-

ization, I do not indorse some of the methods suggested or hinted at, to obtain it.

It is well known that "Organization" was my pet theme for years; and what organization the National Society did have was through my efforts in that direction. I have spent both time and money in trying to get up an efficient organization—one that would be a power for good, and at the same time make it a permanent institution. But as soon as the National Society was incorporated, a "howl" went up from some selfish, narrow-minded bigots, who fought it inch by inch, and apparently, at least, accomplished its dissolution—for at the last meeting at St. Joseph they ignored the past, cut down the constitution, threw out the by-laws, all for what? Heaven may know, but I don't. As the report of that convention has never been published, we may never know the "whys" and "wherefores" of their action. Let us look at the history of the matter a little before entering into the discussion of the *modus operandi* proposed.

At the 19th annual convention held at Columbus, O., Oct. 3, 1888, a new constitution and by-laws were adopted by unanimous vote. These documents were prepared by me very carefully, and presented at the convention of the previous year. They were referred to a committee, and that committee referred them back to the convention, without recommendation. Coming before that whole body, they were unanimously indorsed, and then and there adopted.

Article X. of that constitution reads as follows: "A Defense Committee of seven shall be appointed for the purpose of considering the applications of members for defense from unjust lawsuits by those who are prejudiced against the pursuit. This committee shall be the officers annually elected by the National Bee-keepers' Union, which is hereby declared to be affiliated to the International American Bee-keepers' Association. Its President is hereby made a Vice-president of the Association, and its General Manager also a delegate to the International Convention."

Could any thing be plainer? The Union was *officially declared* to be affiliated to the National Society, and its President and General Manager declared to be officers of the Association.

In St. Joseph last fall, this was (if I am correctly informed) all thrown out; indeed, the whole by-laws were repealed, and the Union "divorced." Now, in less than a year, up comes the present proposition to re-marry the two again. The National Association is to marry the Union, as a blushing bride, probably because of her dowry. What child's play and foolishness!

The Union is prosperous and successful, and needs no "affiliation." The National Society is the impecunious party, and must do all the "sparking" if a re-marriage is effected.

As General Manager of the Union I must say, seriously, that no amalgamation can be made unless so determined by a full and free vote of all its members, upon proper presentation of the aims and objects thereof.

I do not believe that the members of the Union will ever consent to have the funds, raised for defense, diverted to other channels, and used for delegates "to see the boys and have a good time." I know that my consent will never be given for such a thing.

THOS. G. NEWMAN.

Chicago, Ill., June 24.

Elsewhere in the same issue the editor comments upon Mr. Newman's article as follows:

The only change in the constitution that bore fruit was that of affiliation—State and other local societies paid \$5.00 per year, and were then affiliated with the North American. But very few societies remained in affiliation more than two years, and this feature soon became a dead letter. The clause making the officers of the Union a defense committee of the North American did not influence the actions of either society. It was a sort of expression of good fellowship, or sympathy, or an indorsement of the Union by the North American; but the Union went on conducting its affairs as it saw fit, and the North American did the same. There was nothing even approaching the "married" relation to which Mr. Newman so figuratively alludes.

The constitution and by-laws were cut down and revised at St. Joseph because time, that sure tester of all things, had shown that the constitution and by-laws adopted at Columbus were not adapted to the condition of things in this country. Change of constitution, affiliation, incorporation, and kindred

changes will not benefit the North American unless made in conformity with existing conditions; and the brightest of us can not always tell when they are so made—only time and experience can demonstrate that.

It may not be the best that the North American and the Union should join forces; but that one society has more money than the other seems a strange argument to advance against such a course. To have money in the treasury is well; to have spent it in a good cause might have been better. I do not mean to insinuate that the Union has neglected to spend money when it could be wisely spent; but neither the Union nor the North American has for its object the accumulation of money. It is not a question of how much money each society has in its treasury, nor which has changed its constitution the more times, but whether, all things considered, it is *advisable* that the two societies join forces?

The Union was organized for a specific purpose, and has done its work well; but a close observer must have noticed that the amount of work it does lessens as the years go by. At first there was more work than money with which to carry it on, while its manager worked for nothing; now he has a salary (and most richly does he deserve it), yet money is accumulating in the treasury. Some excellent and righteous decisions have been secured, and these have a most quieting effect when shoved under the nose of some would-be persecutor. For this reason the number of expensive law-suits has decreased. This is a condition that would naturally be expected, and is desirable. Now the question arises, Would it not be better that some of this money should be used for the good of bee-keeping rather than that it should go on accumulating year after year? (Perhaps a lowering of the fees would be a better plan.) Of course, those who contributed to making up this sum are the ones to say what shall be done with it. By the way, Bro. Newman says this sum was raised for the purpose of defense. This is true; but it is also true that it can be used to prosecute adulterators of honey, to secure legislation—in short, for *any* purpose thought advisable by the Advisory Board.

As I understand the matter, the North American was organized to advance the cause of bee culture by bringing together the leaders in the profession, with a view to an exchange of ideas. As has been often mentioned, the journals have greatly lessened the value of the Association in this direction. This condition, coupled with poor honey seasons, has made some of the late conventions rather poorly attended. We, as bee-keepers, ought to recognize these changed conditions as regards both of these organizations. Many bee-keepers now belong to one society who can not afford to belong to both, or think they can not. In a union of forces there would be a saving of expense, an increase in numbers, and the benefit of an annual face-to-face discussion of the problems belonging to the Bee-keepers' Union as now carried on.

Suppose that the North American should disband, and all of its members, with what little money they do possess, and their influence, should join the Union, and the latter should then change its constitution so that it would hold annual meetings at which all questions pertaining to bee culture could be discussed. We should then have the condition of things at which I am aiming. This may not be the best way to bring it about, and the suggestion is made more as an illustration than any thing else.

Personally, I have no interest in this matter; that is, I have no selfish personal ends in view. It seemed to me that the proposed union would be advantageous to the members of both organizations, and I have brought it up for discussion. It is quite likely that the question will be brought up at the coming meeting of the North American, and it would be well that it be most thoroughly discussed in the journals before that meeting takes place. The *Review* will be glad to receive communications on the subject—specially should we like to hear from members of the Union.

I must say, that, after looking over the whole situation, and studying it in all its bearings, I am in for supporting the amalgamation. I can't see *how* the workings of the Union would be hampered by being a part of the N. A. B. K. A., and the two organizations in one could be run much more economically.

Referring to Mr. Newman's able article, and his reference to the constitution which he drew up, as I have said before, the instrument seemed to be at the time an admirable one, and was, as I understand, modeled after a similar constitution that has been and is a magnificent success in England; but owing to the geographical distances, and other things peculiar to bee-keeping in this country, the experience of several years unquestionably proves, as Mr. Hutchinson intimates, that the constitution was inoperative in many of its features. For instance, it provided for affiliation by the payment of \$5.00 on the part of any society desiring to come into filial connection with the larger organization; and in return the latter was to grant the services of a judge, and distribute medals, besides several other minor benefits. But after some of the local associations had paid over the money for several years, and received no practical benefits, they "kicked," as they had a right to do. An effort was then made, which finally resulted in the securing of medals at a cost of about a hundred dollars to the North American—money that it could ill afford from the treasury.* But the "medal" business soon played out. Well, there were several other provisos in the constitution that were equally inoperative; in fact, it was practically impossible to carry them into effect as they were arranged by the framer, without more funds than it was possible to get from membership fees. Serious criticisms were offered, and GLEANINGS, among other journals, advocated striking out these features in order that the constitution might be *consistent with itself, in not offering what it could not furnish*.

It does not seem to me that the Union was ever "married" to the North American; and if it was, the ties of wedlock were so loose they did not hold. The truth of the matter, it seems to me, lies right here: Bee-keepers can not really afford two such organizations. Let the Union swallow up the North American, if need be; but let us boil them down into one; then let us have smaller initiation fees, conduct the one more economically, and run the membership up into the several hundreds.

If I am not very much out of the way, the increased membership of the Union very recently was due to the fact that bee-keepers thought, after the constitution was changed to take cognizance of adulteration and other matters, the Union would do something with this great problem of adulteration, and hence the new members. I do not quite agree that all the funds of the Union were raised for defense. The recent addition to membership brought with it an addition to the funds, and this was not so much for defense as for other matters.

* I was one of the executive board at the time, and thought the medals should be secured. I came in for my share of the blame; but I believed the constitution should be made consistent.—Ed.

If we expect large membership, and a power for good, so that, as Bro. York says, we may appeal to legislatures that will *hear*, it is my humble opinion that the Union should *branch out* in its line of work. The field of protection against unjust legislation is *too narrow*. The Union ought to take hold and *investigate* every case of alleged adulteration. It has *seemed* disinclined to take any such action. Again, it should, I think, keep a careful watch of the markets and of commission men. It should also have a watch-dog eye on swindlers who do occasionally creep into our ranks, and have in the past succeeded in carrying off hard-earned dollars from bee-keepers. I am not referring to adulterators, but to unscrupulous queen-breeders and supply-dealers—more especially the former, who have taken in large orders and then pocketed the money.

Last, but by no means least, it should and could fill the mission of the North American, in getting together the leading bee-keepers of the land for face-to-face and hand-to-hand conferences. It should grapple the great questions, and then with a large membership and a financial backing, be in a position to act and do something. The North American is not and has not been what it should be. The Union has had a brilliant past in the line of protection against unjust legislation. The need of such work is largely gone by, but there are newer and larger fields for action, and why not combine our two forces into one powerful one? GLEANINGS is for amalgamation, and, with the *Review*, it doesn't care whether the N. A. B. K. A. swallows the Union, or whether the swallowing is the other way. Let's combine our forces.

It has been whispered to me that some editor was after the General Managership of the Union, or such organization as might perhaps be perfected in the future by amalgamation or otherwise. So far as GLEANINGS is concerned, neither of its editors would accept the office under any consideration. I have already heard from the editors of three or four other leading bee-papers, and find that their position is ours exactly.

Since writing the foregoing, the following just at hand is in line with what I have written:

Although letter-writing is rather out of my line, I can hardly forbear saying a very few words on the proposed union of the North American and National Bee-keepers' Union. I sincerely hope the members of both associations will do all in their power to have them united, and put the dues down to 25 cts. a year, if possible. We ought to have in the National a membership of more thousands than we have hundreds to-day; and in order to get a respectable number on the roll, every one of the present members must do all in his power to induce others to join. Why not have the various associations all over the country discuss the matter of joining the National at their coming conventions? A good deal will depend on the support the bee-journals give the scheme. I want to see the National Union second to none in the United States. WM. RUSSELL.

Minnehaha Falls, Minn., July 23.



Surely goodness and mercy shall follow me all the days of my life, and I will dwell in the house of the Lord for ever.—PSALM 23:6.

Thursday, July 18, 1895, was anti-saloon day at Lakeside; and although Mr. Calvert was in Boston attending the annual meeting of the Y. P. S. C. E., and Ernest has been of late somewhat under the weather, I made arrangements for an absence of two days. At 8 o'clock I was on my wheel, and made the first twenty miles quite easily; but a wind that had been blowing all the time right in my face kept getting stronger and stronger, until it not only made whirlwinds of dust, but crowded back against me so hard that, by the time I reached friend Boardman's, I was pretty tired. I had promised Mrs. Root and the children to get on the cars, or hire somebody to carry me whenever I felt much fatigued. So I swung around into friend Boardman's dooryard. He and his helpers were out among his bees; and as he got sight of me he commenced:

"O Mr. Root! you are just the man we want to see, and you came at just exactly the time we want to see you."

"Look here, old friend, when you know what I want of you, may be you will not be so glad after all. I am tired out pushing my way against this steady wind, and I want you to get up those ponies and take me and my wheel to the electric-car line in time to catch the boat at Sandusky for Lakeside."

He said, "All right," and his boy started right out after the team. His good wife complained because I could not stay to have even an early supper; but while they were hitching up I was invited to look at his new outside beehive where he had just taken off the surplus honey from 80 colonies in the middle of the day, with the thermometer up to 94, and no disturbance of any sort. The escapes are fixed on the outside of the hive, so you have no machinery or fussing in order to provide a place for them in the usual way. And I want to tell you that friend Boardman has got a good crop of extra-nectar honey, notwithstanding the frost and the drouth, and the latter has been severe in his locality. I came pretty near running my wheel on to that fierce-looking chicken-hawk standing in the dooryard; and I was wondering why the thing did not show fight, or fly, until I remembered it was a *stuffed* hawk and not a live one. A rocking-chair in a shady porch made me think of Florida; but I began pretty soon twisting around in the direction of the pump. Oh what beautiful water! And there were harvest apples, mellow and juicy, that had just fallen from the trees; and I ate apples, drank water from the well, cupful after cupful, rested in the rocking-chair, and talked. Had I not worked my passage twenty miles against that wind I should not have dared to eat so many apples and drink so much water. But I knew by long experience that it would be all right. When we reached the electric car I was politely informed:

"No, sir, you can't bring that wheel on to this car, on any conditions whatever."

Of course, I had to submit—at least, the carman thought I submitted. I called to friend Boardman to take care of my wheel till my return; and then the conductor remembered that I could put my wheel on the freight-car just back of us. If he had said so at the outset it might have saved some needless arguing.

The conductor and I chatted very pleasantly, notwithstanding. The line from Norwalk to Sandusky passes through a very pretty country, and it is indeed a treat to ride over it. As the fare is only 30 cents, I suppose there is not much margin to allow them to bother with wheels. But let me offer these car-lines a suggestion: In going to Sandusky, we passed a double-decker. Just as many passengers can be carried in the upper deck as below; and, in fact, they all went up, or nearly all, from choice. Now, have a place on top of the ordinary cars to store wheels and other similar luggage. Make the passenger carry up his wheel, and bring it down again. Why, I could climb a ladder with my 18 lb. Rambler, without a bit of trouble.

When we reached Sandusky they said that the freight-car would not be in for a couple of hours, and there I was without my wheel. I could not wait, for there was to be a committee meeting that evening; and as one of the executive board it was quite desirable to have my presence. Our confab about the wheel and some other things had thrown them back, and the last steamer had gone for Lakeside. The car conductor and the steamboat agent both said there was no possible way for me to get to Lakeside that night. I asked if there were not some private boat that would take me over in time for the board meeting. But they said it would cost me twice as much as my lodging over night, and I could not get there then before ten o'clock. But I have not traveled all these years without learning something. Those fellows did not know how many times I had been told it was an *impossibility* to reach a certain point by a given time, nor how many times I got there, notwithstanding. It was 16 miles by rail; but I should have to walk over a dangerous long bridge and carry my wheel; and, come to think of it, I *hadn't* any wheel. I should have to wait two hours for it. In a few minutes, by dint of questioning and cross-questioning, I found a steamer going to Johnson's Island. The men on the steamer told me that at Johnson's Island I could get a sail-boat over to Peninsula, and then I should have to walk over two miles and a half—to *walk*, mind you, because I *hadn't* my wheel. I had decided to invest a two-dollar bill, if necessary, to make my destination that night. What do you suppose it cost? Just 15 cents on the steamer, and 25 cents more for a special sail-boat, or 40 cents in all.

My arrangements for the trip were just completed when I remembered that I should have no chance for supper, and I should sorely need some other refreshment than the harvest apples and pump water I had had at friend Boardman's. There were plenty of refreshment-stands, but they were all devoted to drinks and tobacco. They said they used to keep sandwiches, but they "didn't pay." The boat was to start in a few minutes. I ascertained there were sandwiches kept at a certain saloon near the boat-landing, down in a cellar or basement. I must take my long walk when both tired and hungry, or else go down to that saloon for sandwiches. I went down. It was so full of drunken rowdies, many of them young men and boys, that I could hardly get through, much less get the attention of a waiter. I thought I would rather go hungry, and beat a retreat. The boat was not quite ready to start, and I felt as though I *must* have a sandwich. I noticed a sign reading, "Ladies' Entrance." Surely I can find somebody down this way who will wait on me. A girl in the dining-room said the only place to get sandwiches was at the back end of the saloon. I told her the rest were so busy that I wished she would wait on me. She

volunteered, and we together went into the back end of the saloon. Thirty or forty men were yelling and cursing, some wanting to fight, some young boys just drunk enough to yell like savages, and all shrieking for *more drink*. The bar-tenders did not seem to have a bit of scruple in giving men on the verge of madness all the drink they could pay for. The girl shrank back, saying it was sometimes actually dangerous to go in there. "Surely goodness and mercy shall follow me," etc. Was it God's hand that led me where I was then standing? or was I out of place there among a drunken rabble in one of the underground dens of infamy in the city of Sandusky? The more I think of it, the more I feel satisfied it would be well if a delegation should go over from Lakeside and walk through these places as I walked through that one; and the reason why I have faith in Howard Russell is because he has been doing this very kind of work through almost all the towns and cities of the State of Ohio.

At Johnson's Island, for 25 cents four men with a boat having sails bigger than a barn took me across to Peninsula. The wind was good, and they said they could all sail over just as well as to do nothing. The same wind that hindered me so much on my wheel now carried me over the water (against the wind) like a bird. By the way, who is going to invent something for the wheel so that the wind may help instead of hindering us in riding against it?

It was almost dark when I started across the main land afoot. I lost my way by my eagerness, as usual, and had to go back. I reached the dense forest encircling Lakeside Grounds just as it was getting to be very dark. I could not see the path through the trees and bushes; but you remember when I climbed Wilson's Peak in the night I learned the trick of keeping in the trail by feeling with my toes. Riding the wheel, I now prefer for shoes the lightest kid gaiters. When I get off, by wiping off the dust with an old silk handkerchief I carry with me in my hip pocket, I can make myself quite presentable. You will remember how highly I spoke of Lakeside and all its appointments a year ago. As I came near the wicket-gate a man stood there with a lantern ready to examine my passport. It made me think of Pilgrim's Progress; but when I got clear up and reached my card through a hole in the gate, the gate-tender was puffing away at a big pipe. This did *not* remind me of the gate-keeper in the Pilgrim's Progress. The next morning at five o'clock I saw another man sweeping the auditorium, puffing away at a pipe. Why, what has got into the people of Lakeside? Can't they find a man to tend gate and act as janitor who does not use tobacco? May be these people come on only after dark, or very early in the morning. I did not see anybody smoking in the day time unless it was the agent for the steamboat and railway tickets. I was a little late at the Lakeside Hotel, but I met most of my temperance brethren, after all, and was ready for business next morning.

I must say a word more in praise of that Lakeside Hotel. Dear reader (perhaps I should have said dear *feminine* reader), just imagine a fine hotel, I should say equal to any in comfort, without a bar, without a cigar-stand, without anybody smoking a cigar, either inside or on any of its various porches; yes, and the most beautiful pure water to drink. There is a neat and tidy barber-shop, bath-room, and closets, and clean men and women in every sense of the word. They are getting good patronage, for every room was occupied, and I was obliged to sleep in one of the cottages. When I came to see the cottage assigned me,

however, I was not a bit sorry; and when I felt like taking a nap between the long sessions of the meeting, a kind Christian lady gave me one of the daintiest lounges to rest on, with vine-covered porches, and flowers in bloom, and shifting shadows all about me, as I closed my eyes to rest. Is it strange that I thought of the words of our text, "Surely goodness and mercy shall follow me all the days of my life"?

On the speaker's stand was an immense canvas on which was a map of the State of Ohio, showing the progress to date. The counties that had been canvassed, and would vote for the Haskell bill, and, furthermore, banish the saloons when the Haskell bill is passed, were painted in white; those not yet so canvassed, or those that refused to vote for the Haskell bill, etc., were shown in dark. Well, friend Russell and his organizers have already made Ohio look considerably speckled. Within the last few months some of the hardest counties have come into line, and some of them have been driving out saloons without even waiting for the Haskell bill. Prominent among these is the county of Defiance; and a minister by the name of Mills, working together with father Kincaid, a Catholic priest, are at the bottom of the work. A bright young Catholic lawyer, who gave us a soul-stirring address on temperance, has also been a mighty power. Dr. Lewis, of Cleveland, president of the recent Sunday-school convention, gave us a most admirable talk, explaining why the Sunday-school indorsed the Anti-saloon League. He repeated something from Parkhurst that brought vigorous cheers: "The wicked flee when no man pursueth." Parkhurst said that, while this is certainly true, it is also true that the wicked make a good deal "better time" when a good man is at their heels. Elder Belt was asked to tell why the presiding elders of the M. E. Church had so vehemently indorsed the Anti-saloon League. He said that, years ago, he had decided to join in with *any* thing that was against the saloon.

Judge West, of Logan Co., was asked how it was possible to keep such a beautiful city of 10,000 inhabitants as Bellefontaine entirely free from saloons, as well as Logan Co., of which Bellefontaine is the county-seat. The judge is old and infirm, and he has also lost his eyesight. On account of his age he sat down while he talked to us. He said he could remember the time when, by general agreement, the farmers for miles around used to come into Bellefontaine every Saturday afternoon and proceed around to the different saloons treating each other. He said these Saturday-afternoon fights kept the court-house full of business, and the jail full of inmates. Somebody asked him if banishing the saloons had made the town dull, and had driven business away. He admitted that it had been disastrous to one line of business. He said the city could not begin to support the crop of lawyers that it did in the "good old times;" but every other line of industry he thought would compare favorably with any other city of its size in Ohio or in any other State.

Space will not permit me to tell more of our grand meeting. The closing address was by Bishop Watterson, of Columbus. I never knew, until anti-saloon-day at Lakeside, that the Roman Catholics have a *total-abstinence* organization that has been in working order for more than 24 years; and I think it is surely true that, since other denominations, as well as Catholics, have joined hands, and since all political parties seem to promise to drop, for the time being, politics and every thing else, and as a unit wage war against *the saloon*, these great movements have made greater progress than was previously possible.

I stayed so long to hear Bishop Watterson through that I missed the boat again for Sandusky. In order to reach home at the appointed time Friday morning I must take the first train and go straight through. By telegraphing to have my wheel brought down to the depot I managed to get hold of it once more, and at fifteen minutes of four on Friday morning, July 19th, I was speeding on my way from the town of Berea, 18 miles due north from home. I reached home before breakfast was ready, and made the 18 miles without tasting food or drink. As the wind was at my back I made it easily; and I could have repeated my text at the head of this talk over every one of the 18 miles, and have it come honestly from the bottom of my heart.

My traveling-companions on the train from Lakeside to Berea were Mrs. Ellen J. Phinney and Mrs. Stephen Laird, State President of the N. P. W. C. T. U.; and the long pleasant talks and conferences we had together on temperance work I shall always remember. By the way, what a wonderful faith and inspiration and energy it gives in this Christian warfare, to feel that there are plenty of other dear friends and kindred spirits all over this land of ours! It may be somewhat of a speckled land, like the map we had up before us at Lakeside; but, God helping us, we are going to make the wicked flee, and that, too, with a good man after him every time; and who knows but there shall be also a good woman at the man's side?



FLORIDA TRAVELS.

Every thing in the way of fertilizers can be used on the Florida soil. Friend Keck told me that he saw an orange-grove where a pig-pen was made around three different orange-trees, situated in different parts of the orchard. These three trees bore great crops of fruit, away beyond any other trees in the orchard not so treated. I did not learn how many pigs were put into each pen, nor how large the pigs were; but the pens were just a cheap structure of rails; and it almost looks as if the pig business and the orange business might be run together, at least for a part of the year.

AVON PARK.

On the road to Avon Park, through the great piny woods, there were many interesting features. When I speak of the sand and the pine-trees, you must not get an idea that Florida is a desert waste, without water. On the contrary, our road sometimes lay right through the water for almost a quarter of a mile. The roadbed was almost as solid and hard under water as above it; and where the water is not more than a foot deep it often seems best to go through a shallow lake rather than around it. So you see it is not alone sand that hinders a wheelman. Another thing, these watery roads often crook around through a swamp full of luxuriant vegetation. If I were alone it would be a very difficult matter indeed for me to keep in the road right where it is under water; but most of the horses in that locality, if allowed to take their own way, would, by instinct or memory, follow along where other horses and wagons had gone before them. A stranger would be in a pretty bad fix in a Florida wilderness. "Stop and inquire," do you say? Well, I do not know whom you would inquire of un-

less it is the gophers; and you would not get a glimpse of even them unless you happened on them about daylight. You may ride miles and miles without seeing any house or any traces of human habitation.

Avon Park looked all the prettier as we emerged from the woods, after our long ride. It is located on the banks of one of the prettiest of Florida's pretty pure-water lakes. At the time of my visit it was about 20 miles from any railway station; but a narrow wooden-gauge track was being laid at the time, to connect Avon Park with the outer world. The hotel and boarding-house were beautiful structures, and every thing is arranged for the comfort of the guests. While there has been a great boom in real estate at this place there are a good many discontented people there now. They say it is all right, and a very pleasant place to live, but there is nothing for anybody to do. Well, there are people in almost every town in the whole United States saying this very thing. At first it did seem to me something of a question whether occupation could be found for all; but when friend Keck and I got up early in the morning and went out prospecting, I changed my views somewhat. Avon Park has suffered less from the frost than almost any other part of Florida I visited. On the south side of the lake, close by the water, at the residence of Rev. F. D. Rood, we found orange-trees with both foliage and blossoms. On other parts of the lake, however, the trees were more or less injured. The severe blizzard came from the northwest, and the protected spot seemed to be on the southeast. The warm water of the lake had tempered the blasts. Tomatoes were also growing thriftily and in full bloom. Of course, I became thirsty, and was told they got their drinking-water out of the lake. Just imagine the purest and nicest water you ever drank, glittering in the sunlight, with pure white sand for its bottom, ready to be dipped up by the cupful or by the pailful, as you choose. In the early morning it was very cool and refreshing. Various windmills around the lake bring the water where it is wanted, or take it from wells, put down wherever a well is needed. On the east side of the lake we visited some beautiful grounds that attracted my attention on account of the great cluster of giant bamboo—a sort of reed like our cane fish-poles, sending up shoots, in a single season, 50 feet high. We saw some that had been cut down, and were lying on the ground. They were as large around at the butt as a man's leg. Each section looked as if it were polished and varnished. In the center is an air-tight cavity like a keg or bottle. The inside is also nicely smoothed and polished. It is claimed that there is more strength, for the weight of material, in these bamboo sticks or timbers than in any thing else in the world, not excepting even iron and steel; and I believe it is generally conceded, especially since the day for wooden rims for bicycles, that a pound of the right kind of wood will bear a greater strain, and stand a greater concussion, without injury, than a pound of steel. It is thought that this giant bamboo is to have great value in the arts. It is only recently that it has been grown in Florida. It is now used as masts for vessels. The wood is very hard, but so light that, with these air-tight chambers, it floats on water like a life-preserver. The owner of the plantation was absent; but his good wife answered all his questions, and told us that this wonderful plant makes a growth in the summer time, of one foot a day. In fact, during the month of May, 1894, it averaged a foot every 24 hours. The green stalk looks something like an asparagus shoot, but, of course, ever so much larger. In the clump of bamboo

canes that we saw, there were perhaps 20 or 30 of these great trees, and 50 feet in height is all made in a single season's growth. After it attains such a height it just stands still, or only puts out side branches. I was told that, in other places in Florida, they have grown to the enormous height of 70 feet in a single season. Just imagine a forest-tree making its whole growth in one year! Of course, the plant has to have three or four years accumulating roots and branches before it makes this wonderful growth. Now tell us, will you? that the soil of Florida is so poor that nothing will grow. Florida is like a good many people, or, if you choose, like most people. They are capable of doing many wonderful things in their own line of work. But no man can excel in *every* thing. While we were discussing these queer properties of plants—the giant bamboo, the mammoth banana, or some name that sounds like mammoth—I became so curious that we were advised to call on the florist and nurseryman, Mr. H. G. Burnett. Here we found giant bamboos in great plenty at 50 cts. a plant, and friend Keck loaded one into his buggy. There were also many other wonderful tropical plants—the agave, for instance, that furnishes the rope material known as sisal hemp. This plant, not satisfied with furnishing *seeds* for perpetuating its species, actually grows little plants in place of seeds; and when they are well rooted and well started, it lets them drop on the ground. All you have to do is to gather them up and plant them in rows. Just think of a tree that produces cabbage-plants well rooted, and, you may say, almost transplanted. But they are not cabbage-plants, but sisal-plants. Well, I became so enthusiastic over these wonderful floral gifts (gifts from God) that I let fall some exclamation that attracted the attention of the nurseryman. When he expressed great joy and astonishment to see A. I. Root at his home, and admiring his handiwork, I asked him what he knew of A. I. Root.

"Why, bless your heart, doesn't GLEANINGS come to our house regularly? and haven't we followed you in your travels all these years? Little did I think it would be my privilege to see you away down here, looking over *my* work."

On the way home, near Crooked Lake it was my good fortune to see a real full-grown alligator sunning himself out on the bank. Yes, and there were two smaller ones lying near. Friend Keck said that, if we approached very cautiously, we might get very near them before they were disturbed; and then he made his mule go very slowly among the grass and weeds along the water's edge until I actually began to be afraid. How did he know that this great monster would not pounce down upon us and gobble us up, or smash us to pieces right there in the water, nearly two feet deep? Besides, I could not get over the idea that pretty soon we should strike a *swampy* place. It is true, we had *not* struck any as yet, but it looked exactly like places up in Ohio, where the horses and wagon would get in and never get out. We got up so near this great "gator" that I began to feel decidedly uncomfortable. Friend Keck, however, was as cool as a cucumber, and kept saying every minute that he would wake up and go off with a tremendous spurge. And so he did. One would scarcely think, from the looks of the great lazy monster, that he could possibly get up such a thrashing and splashing. When I began to insist that 'gators were dangerous, and that they sometimes eat people up, he said he knew of but one accident, and that that did not terminate fatally. It occurred near this very spot, as nearly as he could remember. Alligator skins used to be worth

about \$25.00 apiece—that is, the skins from the big ones (if it was not \$25.00 it was something less). The darkies are much given to 'gator-hunting. Well, a party of hunters came along here. A colored man, who was one of their helpers, saw an alligator on the bank; and having in mind the value of the beast he hastily cut a big club with which to pound him dead. I suppose he was somewhat excited, for he did not trim the limbs off from his club very well; but he thought it would answer, and so he slipped up cautiously, getting near enough the sleeping monster to give him a fearful whack on the back of the head. This 'gator did not prove to be so peaceable—at least, after such an invitation for a battle. He whirled around and grabbed the big end of the club in his teeth; then, according to alligator custom, he commenced rolling over and over, so as to bring his victim into the water, where he could drown him and then eat him at his leisure. The darkey was afraid of losing his prize, and so kept hold of his club, not noticing that the prongs he had left sticking out were getting entangled in his loose summer clothing; and as the process of winding went on, our colored friend was rolled up, and finally thrown off his feet. He yelled to the party of hunters, for help; and when they took in the situation they were convulsed with fits of laughter to see that the brute had rolled him over into the water, and he came near strangling before they could, by their united efforts, cut his clothing off from him, and get him away. Friend Keck said this was the nearest approach to killing a man that he ever knew an alligator to make. The 'gator I saw, he estimated was 15 feet long.

A little further on we came to a picnic-ground where there is a beautiful spring, or I should call it an artesian well. The water comes up in a great volume—sufficient, in fact, to make quite a little river. The temperature is just right for a comfortable bath; and if you feel like it you can swim, or at least attempt to swim, right down into the crater, "whence the healing waters flow." But the volume is so great that the water will throw you out as fast as you try to get near the opening. Turtles, fish of different sorts, and other reptiles, are being constantly thrown up by the boiling water. This was my first sight of the series of the wonderful springs of Florida. The water is all more or less impregnated with sulphureted hydrogen, like that of the artesian wells.

At Bartow I was obliged to bid my good friend Keck good-by, with whom I had passed so many pleasant hours, and start off once more for strangers and strange homes. An account of my trip from Punta Gorda to Fort Myers has already been given in my letter to the Sunday-school class, page 232, March 15.

At Fort Myers my eyes were greeted by green grass—grassy lawns and grassy roadways. My first point was toward a branch of the Florida experiment station, under the charge of W. A. Marsh. An excellent hotel furnished us with my first meal, consisting of fish, duck, and venison—surely a sufficient variety to suit any palate. Here again I saw the wonderful giant bamboo. At the experiment station they were testing crimson clover; agave, or sisal hemp, I have already mentioned; a great variety of grasses, millet, pineapples, etc.; and where anybody is inclined to say they can not raise even feed for the horses in Florida, they had better see what Prof. Marsh has already accomplished.

Somebody told me I must surely call upon Mr. W. P. Gardner. I went over in the evening, after my supper at the hotel. As I opened the gate, the perfume of flowers of various kinds gave evidence of the beauty of the place,

although it was too dark to see much but an indistinct mass of foliage. I rapped at the door, but nobody came. As said door was wide open, and a bright light shone beyond, I finally walked toward the light. A bright clean lantern was throwing its rays through an open veranda, but I did not see anybody. Finally the sound of human voices reached my ears from the house just beyond. Many of the best houses in Florida have a little building for cooking and dining, separate from the main building; and therefore during meal time the living-rooms are mostly deserted. After knocking at the door of this second building, which seemed to be a sort of summer-house out in a large garden, a very pleasant, nice-looking young lady informed me that her father had just gone over to have a talk with their pastor, Rev. J. M. Sweat. This was over in another part of the town; but I rather enjoyed the prospect of becoming acquainted with the pastor of the place, as well as with friend Gardner. Well, I found them; and, oh what a pleasant visit we did have for an hour or more, talking over matters social, industrial, and spiritual! The minister knew me by reputation, and friend Gardner used to preach in Medina Co. some forty years ago, and remembered me when I first commenced business here. He is an enthusiast in Florida fruits and flowers; and they told me on the steamboat that he actually raised so much fruit of different kinds in his garden that he had started a factory for canning guavas, and for making lemon and orange jelly. I have told you before about the delicious guavas. And now I want to say that his orange and lemon jellies are the finest I have ever tasted anywhere.

After we had looked over the garden by the light of the afore-mentioned lantern, viewed the rosebushes that had been in bloom every month in the year for ten years or more past, and tasted the delicious oranges while I smelled the perfume from the open blossoms, and after I had admired and asked questions about the wonderful plants and fruits, then he showed me their handsome canning-factory. Although no visitor was expected, it was as neat and tidy as a well-kept pantry. Their crop of guavas was so great, that, in order to keep them from spoiling, they had successfully canned them in great tin cans holding from five to ten gallons; then during the winter season these great cans were opened, and they made guava jelly, or put it in shape as the market called for it. I asked them how it was possible they learned to master the mysteries of the canning business so successfully. He told me they worked it out alone. I was afterward told that the bright, intelligent daughter whom I met was at the bottom of the nice-looking establishment and a successful industry. Mr. Gardner is a wonderful man; and that garden comes back to my memory as I write, as a veritable little garden of Eden, crammed with every thing luscious and entrancing to the eye, to say nothing of the perfume of the beautiful flowers. Fort Myers was the only place I visited in Florida that was practically unharmed by the freezes.

I reached Fort Myers toward night; and by the time I had looked over the branch of the experiment station, and got my supper, it was dark. The visit to the canning-factory and to friend Gardner's garden used up all of that evening. The boat on which I was to leave was to go out very early the next morning; and in order to see as much of Fort Myers as possible, I arose next morning before anybody else was stirring—at least, I did not see anybody. As I walked through the streets of the silent town, the cows got up lazily when they happened to be in my way; and I enjoyed seeing the sun

rise, and the bright-green grass sparkling with dewdrops, almost out in the middle of the streets. To tell the truth, I am afraid there is not very much business going on in the town of Fort Myers. I do not believe they have very many progressive and go-ahead men like W. P. Gardner. Perhaps the absence of frost-bitten vegetation was one thing that made me think Fort Myers was one of the prettiest spots in the whole of Florida. The soil seems to be exceedingly fertile. It is not altogether sandy. I do not know how much manure or fertilizer they use on their gardens; but there seemed to be a vigorous, luxuriant growth almost everywhere. On the outskirts of the town I passed by a garden that was so much ahead of any of the rest that I ventured near enough to look through the picket fence. A stuffed animal, that I guessed must be a wildcat, seemed to be standing sentinel among the vegetables. I thought of friend Boardman's chicken-hawk, and wondered if other people were using taxidermy in a similar way. Finally the door opened, and a lady looked out. I was so near by, I thought some apology might be needed for my apparent inquisitiveness; so I asked permission to look at their beautiful garden, and naturally made some inquiries about the ferocious-looking wildcat. When I happened to say that I had already described this method in our journal, she hastily interrupted me by an exclamation:

"Your journal! Why, it can not be possible that this is A. I. Root himself, away down here at Fort Myers?"

Then she came toward me with extended hand, while I inquired how it came that she knew of A. I. Root.

"Why, bless your heart, Mr. Root! haven't we taken GLEANINGS for years past? and haven't we in our wanderings followed you on its pages in your wanderings?"

Then she made haste to call the goodman of the house, and told him to hurry up and see A. I. Root himself, who had been right there looking through the pickets at their garden, before any of them had enterprise enough to get up. The stuffed wildcat was an idea they had taken from GLEANINGS; but the rabbits (I think it was the rabbits) had been helping themselves to their early cabbages and cauliflower, and they did not seem to have very much respect for GLEANINGS or his snarling catship either. I had just time to shake hands with Mr. and Mrs. David Hadley, and say "how d' do?" and "good-by" to the children, when it was time for the steamboat to leave. There may be objections to choosing Fort Myers as a place for a home; but I did not notice them unless it was a sort of apathy or indifference on the part of many of the inhabitants. I made some inquiries, early in the morning, for a clump of giant bamboo I was to find in the town; but a young man who was sweeping out before a grocery, who had lived there all his life, said he did not know of any giant bamboos, and had never heard of them. I afterward found them sending their tall spires away up above and over the hotel where I had stopped over night.

On my way back, in Charlotte Harbor I saw six boatloads of Florida phosphate, drawn by a tug. I should not omit to mention that at Fort Myers a very pretty residence was pointed out to me, belonging to Edison, of electrical fame; and, in fact, here and there throughout the whole State of Florida we frequently found residences built for noted men. As in the case of Edison, however, a good many of them rarely go down to even take a look at their places.

I don't think I can get along without GLEANINGS while we keep bees; so I want to subscribe for it three years. MRS. GEO. GIDDINGS, Laporte, Col.



CRIMSON CLOVER.

A great number of questions are constantly coming in, in regard to this new forage and honey plant, and we are selling large amounts of seed. In fact, a two-bushel bag is going out almost every day, and sometimes two in a day. I do not know what the consequence will be of sowing it too early. If it should blossom before winter, I suppose that would be the end of it, because the plant dies after blooming once. I presume, however, it is well to get as large a growth as possible, without running up to seed, the same as with spinach, and other plants that stand over winter. I would recommend, therefore, that it be put in all through the month of August, and perhaps through September also. In order to test it, we commenced sowing it first early in July, with buckwheat. This first sowing was up in a week, and now it has the second leaves on. It is very quick to germinate, and grows very rank and strong during this warm dry weather. We have had two good rains, though, since it was put in. Some succeed while others do not, in a locality as far north as this. Very likely, however, very much depends upon how it is sown, fertility of the ground, etc. It seems to be fully as hardy as red clover. Its great value to the farmer is, that it may be put in during August and September, wherever crops of any kind are taken off; and, more than that, it may be sown right among the standing corn, just after you cultivate it the last time. The corn shades it from the intense heat of the sun; and as soon as the corn is removed, the clover has the ground. We are sowing it to-day, July 29. We have just cultivated for the last time our extra-early Corey corn. We cultivated the ground before putting in the seed; and in order to get it well down during this hot dry weather we are going to run the cultivator through again after sowing.

There has been sufficient success, not only in Ohio, but even as far north as Michigan and York State, to warrant us in taking considerable pains to learn how to handle it. If it succeeds, you have a great lot of feed very early in the spring; and if you wish to enrich the ground for some future crop you have a great growth of clover to turn under. When it succeeds, this latter plan is probably the cheapest way of manuring your ground that has ever been devised. I say *manuring*, for a heavy growth of this clover, or, in fact, any clover, turned under just before planting your crop, is equivalent to a great many loads of the very best stable manure. Another thing, you do not get a great lot of weed seeds as where your manure is purchased.

PRICKLY LETTUCE, OR WILD LETTUCE.

A good deal has been said in our papers about this dangerous weed. But I am inclined to think a good deal more needs to be said. If you do not know it, it is a sort of milkweed, with bluish-green leaves, and yellow flowers the color of a dandelion, but rather more the shape of a thistle-blossom. The leaf is long and prickly. It does not quite surround the stalk, but there are a couple of little ears running opposite from the way the leaf points. Now when I tell you it will shoot up and go to seed quicker than almost any other plant you ever heard of, you will recognize it without trouble. This year, as usual our strawberry-beds were kept clean till

picking-time; then the weeds were allowed to grow until the last berries were picked, at which time the old beds were promptly turned under, as I have explained. Well, although there was not a prickly lettuce to be seen when we commenced picking berries, this weed was two feet high, and some of the stalks were sending seed flying out on the wind. I told one of our men that that patch of strawberries must positively, every plant, be plowed under before another day passed, and that the prickly lettuce ought not to stand for even one hour. Sometimes my friends complain that I do not explain fully just what I want or mean; but I surely did in the above. Would you not think so? Well, the man stopped his plowing between five and six, saying he did not suppose I would care if the weeds were left just one more day. Well, I thought best not to say anything, but I did care greatly. And we ought to care, all of us. Prickly lettuce should be stamped off from our farms and gardens, and we should not wait a single day or a single hour.

Three years ago the plant was unknown in the State of Ohio, and now I see it almost everywhere I go with my bicycle. Friend Boardman and I found it beside the road up in Huron Co.; and I am told it is now pretty much all over the State. Now, mind you, the dangerous part is the tremendous rapidity with which it grows in hot dry weather, and sends its seeds flying in the wind. The roots never live over like the Canada thistle. In fact, they do not need to. The remedy is to pull it up, or chop it off with a hoe just as soon as it is getting into blossom. That ends the business for each individual plant.

HOW TO HANDLE THE GAULT RASPBERRY.

The card of directions below was sent out with each package of plants shipped by me last spring. I believe Mr. Root did the same.

In unpacking, be careful not to injure the young, tender sprout. When the young canes attain the height of 6 or 10 inches, pinch out the top; this will encourage laterals.

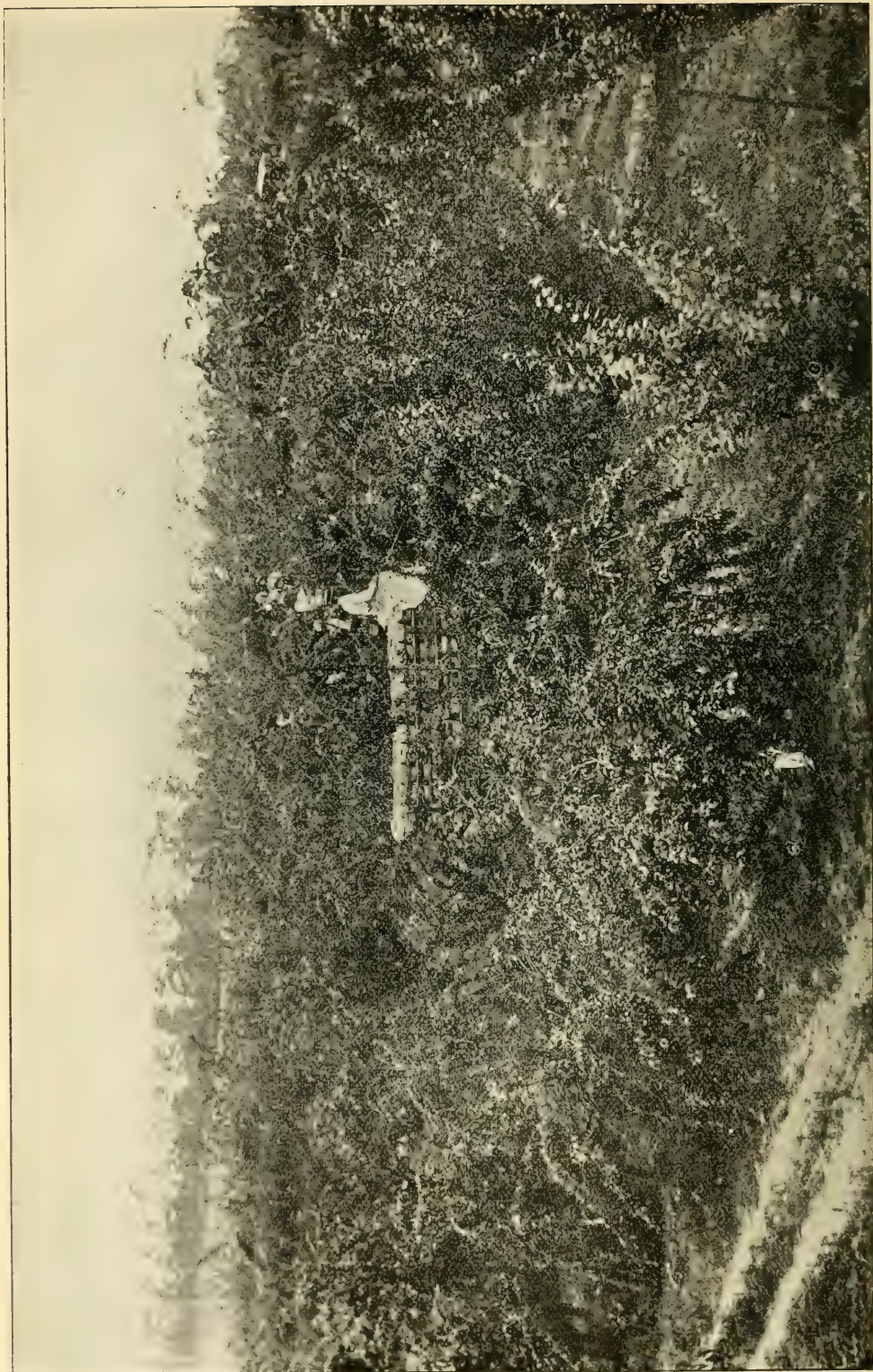
Then, if you desire fruit, let them have their own way; but if you wish to propagate young plants, pinch off all the blossoms as fast as they appear. This treatment will cause them to throw out leaders which will root readily when covered with earth.

The second year, prune back the same as any black cap, and cut out all old canes as soon as through bearing.

It was my design to make it as clear as possible; yet I find that, in many cases, it has not been thoroughly understood. I have received many letters requesting further information in regard to propagating. The plants were not all sold to experienced nurserymen, but, on the contrary, a large proportion of them went into the hands of persons who were little practiced in the art of horticulture. To such this information may possibly be of benefit.

The most convenient time to pinch out the blossom is when it is a small round ball, about the size of a well-developed currant. At this stage it will roll out readily when pressed between the thumb and finger. I am not surprised that some mistakes should occur at this particular point, for I often find myself getting sadly behind in this matter by allowing great spikes of blossoms, and sometimes even berries, to form on the plants. Now, should this occur we must cut back beyond the last fruit-bud; for if we leave even one or two, the whole energy of the cane will go to ripen the berries, and not a single leader will appear.

It will be remembered that the production of fruit and roots depends upon different physiological principles; and the peculiarity of this variety of raspberries is that of its wonderful



J. W. DAY'S PLUM ORCHARD, CRYSTAL SPRINGS, MISS.

tendency to fruit-bearing. At one time when Mr. Root came to see my berries he asked me if I thought I had now learned about all there was to know about their treatment. I answered emphatically, "No," and added that I expected to learn a great many valuable lessons from him after he had a few years of experience. I have already received many important suggestions. They root at the end of the cane; and the time to tip them does not differ materially from that of other varieties of black caps. Ruggles, O., June 20. W. C. GAULT.

Perhaps some may inquire what time of year raspberry-tips are usually buried in order to get plants. I think we commenced burying the tips about the middle of September last season; and as more came out we kept covering them up through the greater part of October. We then had about two rows of Gault raspberries—about 50 plants in each row. One row had the blossom-shoots picked off as directed above, and the others were allowed to do as they pleased. Well, we did not discover very much if any difference in the amount of plants produced by the two rows. I think one reason for this is, that very rich creek-bottom land produces a great growth of wood and not very much fruit. If my reasoning is correct, a rich creek bottom is the best place to raise plants; but upland ground, and land not quite so heavily manured, would be a better place to raise berries. This is true of strawberries also. The creek bottom is the place to raise plants by the thousand, but not the best place for nice berries. We should be glad indeed to receive postal-card reports in regard to how our friends have succeeded and are succeeding with the Gault raspberry.

FRUIT-GROWING AT CRYSTAL SPRINGS, MISS.;
J. W. DAY SENDS US SOME ABUNDANCE
PLUMS, AND A PICTURE OF HIS
PLUM-ORCHARD.

Friend A. I. Root:—To-day I express to you a crate of the finest plums I have ever seen, and hope you will receive them in good shape; also one crate of tomatoes and a crate of magnolias and sweet-bay flowers, etc. They are for Mrs. Root and daughters and daughters-in-law.

I also send you a picture of my plum-orchard, taken last week. You will notice the three-story rack made to hold 36 water-buckets to the deck, or 108 in all. You will also notice the heavy tarpaulin rolled forward, and the driver sitting on it. It completely covers the frame when loaded. We use the five-inch-tire Michigan wagons. If you have a glass of the right kind, by looking close you may see the plums on the trees. They are all loaded. I have tried 63 varieties of plums here, and pronounce this one far in advance of them all. I guess it is the Abundance, or Sweet Botan.

I also send a clipping from an old friend of mine, written last week for his paper, the *Jonesboro Gazette*, Jonesboro, Ill.

Crystal Springs, Miss., June 24. J. W. DAY.

Our friends who have read the Tomato Book will recall the account of my visit to Crystal Springs—what I said about their peach-orchards, etc. If I recollect, friend Day showed me a single row of plum-trees a mile long. These plum-trees are now in full bearing. The picture gives you an idea of these. The road-way over the clean white sand in the foreground looks very much like friend Day's neighborhood. The plum-trees cover the ground so completely that it is a hard matter to distinguish the roads. The drooping branches,

borne down by their weight of fruit, is very suggestive, even though we do not clearly see the plums. One wonders how that wagon with its tier upon tier of buckets is ever going to get through such a dense thicket of trees. The buggy-top, a little ahead, suggests a roadway. I can not quite make out whether the children up among the tree-tops are picking plums, or whether it is another loaded wagon coming this way. I think I see a boy on foot with a paifull of plums in his hand, right back of the driver.

About the fruit that was sent us: Well, the plums were about the size of peaches, and certainly as luscious as any peaches I ever ate. Mrs. Root said we must not eat any just before going to bed, at the time the crate arrived. But I thought it would be almost uncourteous to our good friend Day if I did not bite into just one. Now, if any of you have ever tasted an Abundance or Botan plum like the one I tasted then, you will realize how utterly out of the question it was to put any portion of that plum away until morning. A little later I discovered some that were so much bruised they would probably spoil before morning. The more I thought of it, the more I felt certain of it. So I ate another and still another, and yet I did not feel satisfied. Oh, yes! we divided them around among the children and the "children-in-law," as friend Day had said. But if any one got sick, I have not heard of it. Now, this is indeed a great surprise to me. The *Rural New-Yorker* has told us about the tremendous quantities of plums that grow on one little Abundance tree; but I did not suppose they could be both so "abundant" and of such exquisite quality. Why, almost anybody would give a nickel for such a plum, just to show around and see people raise up their hands and make exclamations. We submit the following, from the newspaper mentioned:

They are now shipping 20 carloads a day. The tomatoes (Acme variety) are large and very fine. J. W. Day has the finest fruit-packing and shipping house in the country. It is 425 feet long and 40 feet wide, with a platform to the railroad track. In this building was stored box stuff for the fruit crop now arriving. Mr. Day has also put in an electric motor which propels fans over the packing-tables, which makes it cool and pleasant for the large number of packers employed. The tomatoes are carefully sorted, and packed with care. A carload of tomatoes and plums was shipped to Kansas City Saturday. Mr. Day is "right in it" on peaches this season. The 400-acre peach-farm, planted with great care by Parker Earle and J. W. Day, is now in bearing. The trees are not crowded with fruit, but there is enough for a good crop. Most of this fruit will be marketed next month. Thirty carloads is a conservative estimate of the crop. The finest sight upon this large fruit-farm is the four-acre orchard of Sweet Botan plums. The trees are loaded to the ground. These plums are delicious, and sell well. There will be 1000 bushels of them. Mr. Day has also a fine crop of tomatoes. Five hundred carloads of tomatoes will be shipped from his sheds this season. During the next month 150 people will be employed to handle his peach crop. There are other orchards here, and the fruit shipments from this station this season will be larger than ever before.

To-day was a big day for tomatoes, 22 carloads being shipped, and two left over for want of cars. The streets were thronged with wagons drawn by oxen, mules, and horses. The colored brother is going into the truck business largely, and it is feared that his carelessly packed stuff will knock the bottom out of the market.

EGYPTIAN ONIONS GOING TO SEED; LATHYRUS SILVESTRIS IN FLORIDA, ETC.

Mr. Root:—Is it usual for Egyptian onions to bear seed? I have some now in flower. In reference to the *lathyrus silvestris*, I have grown it for two seasons, and find nothing at all in it to compensate for the great trouble of

getting a stand here. It will not stand two weeks' drouth; and as for its honey, I have yet to see the first bee on it; and I doubt its being nearly as good a nitrogen-catcher as our common bush bean, Refugee, Best of All, or others of the same class, as I find far more nitrogen nodules on the bean than on the flat pea.

Crimson clover and sainfoin are far ahead for fodder, for soil-improvers, and for honey, the honey from the latter being equal to the best white clover, only a shade darker.

Wewahitchka, Fla., May 30. H. F. HART.

The Egyptian onions occasionally bear a few isolated flowers; but I have never known them to produce seed. By the way, this suggests the fact that there is a tremendous tendency in all the onion family to sport and mix up. Last season I said that the white Multipliers never produce seed-stalks. Now, we kept our Multipliers very carefully by themselves; but this season a dozen or two seed-stalks have run up. We might be tempted to think they would mix; but how could they mix when they never before produced seed at all, but just multiplied like potatoes? I am inclined to think the lathyrus is not suited for Florida; and, in fact, as a rule, neither are any of the clovers, if I am correct. I am glad to know that beans furnish nitrogen nodules as well as the pea and clover family. This I know, that beans flourish and thrive when the weather seems to be too dry or the ground too poor for almost any thing else.

ELECTROPOISE.

ELECTROPOISE \$25.00, AND NOT A CENT LESS
WHEN YOU BUY IT; BUT NOT EVEN 25
CTS. FOR IT WHEN YOU WANT TO
SELL IT BACK AGAIN.

If our readers will turn to page 536, July 1, they will notice that I there advised Leahy Beachy (a sister of Jacob) to ask the Electropoise people how much they would give her for the instrument back again, since it is comparatively new and almost unused. Here is the reply.

Mr. Jacob Beachy, Aurora, W. Va.:—

It is not our custom to take instruments back at any price. J. E. DUBOIS, Pres.

1122 Broadway, New York, June 20.

The above is the only sentence in the letter in regard to receiving it back again at some figure. Now, friends, is not this enough? There are still a few who insist that the Electropoise has virtue, and that possibly the manufacturers are doing an honest business, or think they are. Where an instrument is made to order, or a special machine is built for some particular person, cases may occur where it would be of no value to the makers; but this instrument is just such as they keep in stock, and furnish broadcast to whoever can be induced to buy them. When you want to buy, the price is \$25.00—not a cent less; you must even pay the express charges yourself; but when you want to sell the machine back again, in consequence of the death of the patient, as in the case above you are coolly informed that they "never take instruments back at any price." No wonder. It costs them in the first place only 50 cts., or even less; and probably their best retreat out of the corner they are in is to decline to purchase rather than offer 30 or 40 cts., the real cost of the thing to themselves. If there is anybody who now defends the Electropoise people, and claims they are Christian men, and doing an honest business, we should be glad to hear from them; or if there is a religious journal, or any other journal, that is accepting their advertisements, we would respectfully call their

attention to the above transaction. Let me explain again that the reason why the instrument was offered back was because the patient died while using it.

To explain the failure, the Electropoise people say the disease was probably, "organic." But they *knew* that in the first place; still they said they had "no doubt" they could "bring about a cure." Men have been justly hanged for being less directly implicated in murder than that. Can't the United States postal authorities put a stop to such rascality?

Many of our periodicals—in fact, our most respectable religious papers—have rejected Electropoise advertisements. Let me call attention to the *Union Signal*, which has right straight along refused to disgrace itself with Electropoise or any similar advertisement. This paper should have been mentioned in my former list. One of our subscribers wrote to the editor of the *Cumberland Presbyterian*, protesting in regard to Electropoise. Below is the significant reply:

Dear Brother:—In reply to your favor of the 11th inst., we would state that the Electropoise has been used by large numbers of people in Nashville and vicinity, including our most intelligent and sensible people. There are hundreds who believe they have been materially benefited by its use. I have used it myself, and it has seemed to benefit me. On the other hand, there are some people who believe that the benefit is purely imaginary, and that there is no efficacy in the Electropoise itself. Just how this is, is difficult to tell. We think that, through the imagination or otherwise, a great many people have been really benefited by its use. I suppose that certificates could be procured from thousands to the effect that it had been materially beneficial to them. This is about all the light on the subject which we are able to give you. JOHN M. GANT.

Nashville, Tenn., March 13.

There is a good deal of sound sense and wisdom in the above, after all. If people could be induced to pay \$25 for a horseshoe to be nailed up over the door, no doubt a great many would be helped through the imagination. I guess we are nearly all agreed on the above. But what sort of business is this for a *religious journal*, and a progressive one, to engage in? Can there be any fairness or honesty in taking money from poor hard-working *sick* people, fifty or even a *hundred times* the real value of the thing, even if it *does* cure through the imagination?



THINGS THAT MAY BE PLANTED AUGUST 1ST.

First and foremost for the bee-keeper, buckwheat and crimson clover, both on the same ground. One gives a honey crop this fall, and the other a crop of honey early next spring. In the way of garden seeds, almost every thing on our list on page 573 of our last issue, especially Egyptian and American Pearl onion-sets, and Multiplier onions. For prices of all, see page given above.

BEESEWAX DECLINED.

Until further notice we offer for average wax, delivered here, 22c cash, 25c trade. Market for wax in New York is quiet. We recently made a shipment at that point of three tons, and get about 5 to 6 cts. per lb. less than we paid there last March. Selling price of wax in small lots, till further notice, will be 29c average, or 31c for refined.

CALIFORNIA SAGE HONEY.

We have negotiated for a car of white-sage honey which we hope to have here ready to ship out on orders within the next two weeks. It may be a lit-

tle later before it arrives. We will take orders for shipment after arrival at 8½c per lb. for a single can; 8c per lb. in lots of 1 case of 2 cans, or more. Special prices quoted on large lots on application.

CHOICE COMB HONEY.

We have already handled quite a little new comb honey. We shall be pleased to hear from those not too far away who have some nice comb honey for sale, giving a description of it, and price asked. We are selling small lots of comb honey at 17c; 100-lb. lots at 16, and 200-lb. lots at 15c. The latter is our extreme price so far this season, and given for not less than a crate of nine 24-lb. cases.

CRIMSON-CLOVER SEED.

We still have a large stock of crimson clover on hand, and can probably supply all demands at the following low prices: Two-bushel sack, \$7.00; per bushel, \$3.60; half-bushel, \$1.90; peck, \$1.00; pound, 10 cts. If wanted by mail, add 10 cts. per lb. extra for postage and packing. We will send 3 lbs. by mail, postpaid, for 50 cts. From 8 to 15 lbs. of seed are needed per acre.

CHOICE CLOVER AND BASSWOOD EXTRACTED HONEY.

We have just secured from Vernon Burt, of this county, about a ton of very choice thick extracted honey, of excellent flavor. This we offer in new 6-lb. cans at 9c per lb. for single can; 8½c for a case of 2 cans; or 8c per lb. in lots of 2 cases or over. We shall have an outlet for more of the same kind, and shall be pleased to receive samples and offers from those having it for sale. We have an outlet also for some of a lower grade.

COMB FOUNDATION DECLINED.

On account of the declining price of beeswax it becomes necessary to decline the price of comb foundation. As the season for its use is practically over for this year, this decline will affect only the few sales from now till active season opens again, by which time it may be necessary to again change the price. For the present, however, and until further notice, the price will be 2c per lb. lower than in the table, as listed in our catalog, and the table of prices will then stand as follows:

Price per lb., in lots not less than
Sq. ft. per lb. 1 lb 10 25 50

Heavy brood foundat'n.	4 to 5	45	44	43	42
Medium "	5 to 6	45	44	43	42
Light "	7 to 8	48	47	46	45
Thin surplus "	10	55	54	53	52
Ex. thin "	11 to 12	60	59	58	57

TEN NEW ENGLAND BLOSSOMS AND THEIR INSECT VISITORS.

The above is the title of a very pretty new book sent us by Houghton, Mifflin & Co., Boston. It is the work of our well-known friend Clarence M. Weed, and contains some of the most beautiful half-tone engravings of flowering plants and other things that ever graced the pages of any book since the world began. Please remember that is the opinion of A. I. Root, who may not have seen all the books in the world. The typography and the whole make-up of the book is a thing of beauty indeed. It consists, as you will judge from the title, of an account of both flowers and insects, including our honey bees and their relations to the floral world. The book might well grace the parlor-table of any bee-keeper. The book contains 142 pages, neatly bound in cloth. Price, postpaid, \$1.25.

BOOK OF FRAUDS AND OVERCHARGES.

The above is the title of a book by E. W. Cole, of Melbourne, Australia. A part of it is taken up with Dr. Wilford Hall's water-cure swindle. The book contains the whole of Dr. Hall's wonderful story; it also contains the entire matter of a book published by Dr. Juke, 60 years before. Dr. Juke's book is so wonderfully like Dr. Hall's little pamphlet that one can hardly escape the conclusion that Wilford Hall had the book before him when he wrote about his wonderful discovery. The latter part of the book is given to the publication of secrets regarding patent-medicine frauds, including cures for drunkenness, etc. On one of the fly-leaves in the last of the book we find a prospectus of another work, entitled, "Advice of Ten Doctors."

No. 2 of the ten seems to be your humble servant, A. I. Root; but as friend Cole has put me in company with Dr. Kellogg, Dr. Trall, and other eminent professors and M. D.'s, I suppose I ought not to find fault. I presume likely it is a collection of what I have written in regard to doctoring without medicine, etc. I appreciate the compliment, dear friends; but I never want to sail under false colors; so please remember that I am neither a doctor nor a minister, nor any thing but a common layman who loves humanity, body and soul. The price of the book is, I think, 35 cents.

Friend Cole puts a strong emphasis on the fact that Dr. Hall claims emphatically that he was "the first of all earth's teeming millions to inject more than a pint of water into a human being." Dr. Juke, in his book, 60 years before, however, says, "With this apparatus I was enabled, by refilling it, to throw up 14 pints of water, which proves its very great capability." So if Dr. Hall really discovered any thing it was just what Dr. Juke had put in practice, and published with great emphasis, 60 years before.

KIND WORDS FROM OUR CUSTOMERS.

The freight you sent me reached its destination all right. I was highly pleased with it. You need no other advertisement than to show your goods. You may expect a larger order from me soon.

Lawn, Texas, May 23.

JOHN LACKY.

Accept my thanks for the beautiful lot of sections you have sent me. They can not be excelled in smoothness, evenness, and fineness of finish. An order for several thousand more will follow this.

Martinsburg, W. Va., June 3. WILL THATCHER.

THE NEW CRANE SMOKER.

The new Crane smoker is a "dandy"—gives a tremendous volume of smoke, is very easy to load with planer shavings, which I use, holds its fire well, and responds at once after standing unused for a long time.

Troy, N. Y., May 31.

LEVI DE FREEST.

Dear Friend Root:—GLEANINGS is at hand just now. Before I forget it, let me tell you that, whenever your bicycle-chain breaks or flies off while going down hill, all that you have to do is to grasp the fore part of your front wheel between your feet and thus improvise the most efficient kind of brake.

Knoxville, Tenn., June 20.

ADRIAN GETAZ.

[To the above kind suggestion, E. R. R. appends a footnote as follows:

"Yes, sir; you ought to learn this foot-brake act. It may save your life."

I have already learned, on wheels having a foot-rest brake, in the manner described; but at the time mentioned it was just all I could do to keep my seat, to say nothing of manipulating my toes so as to break the speed. However, I am going to practice further on the subject.

A. I. R.

"The Southland Queen."

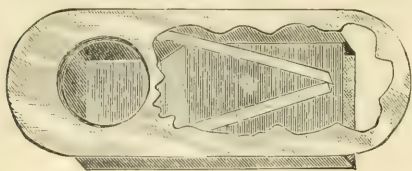
Send \$1.00 for the Southland Queen. Edited by the Atchley family. Plain, practical, and all fresh bee matter. Jennie Atchley will begin a bee-keeping school in June 15th No. All that wish lessons, come in. A steam bee-hive factory, Root's goods, Dadant's foundation. Send for free catalog and sample journal.

THE JENNIE ATCHLEY CO.,
Beeville, Bee Co., Texas.

Stingless Bees! See page 525, GLEANINGS, June, 1895.
H. Alley, Wenham, Mass.

THE FOUR SEASONS RUNNERLESS STRAWBERRY.
Grown from French seed. Fifty or sixty fruit crowns form and fruit on each plant between May and November. Berries small and shuckless. Plants 10c each.
A. T. GOLDSBOROUGH,
Wesley Heights, Washington, D. C.

Advantages of Bee-Escapes.



No sweat steals down the heated cheeks and aching back of the bee-keeper as the result of standing in the hot sun puffing, blowing, smoking, and brushing bees; no time is wasted in these disagreeable operations; and no stings received in resentment of such treatment: the honey is secured free from black or even the taint of smoke; the cappings are not injured by the gnawings of bees; and robbers stand no show whatever. If there are any broken burr-combs they are cleaned up by the bees *inside* the hive, before the honey is removed. **Leading Bee-keepers use the Porter Escape**, and say that without a trial it is impossible to realize the amount of vexatious, annoying, disagreeable work that it saves. The cost is only 20 cts. each, or \$2.25 per doz. As in the past, this escape is manufactured by the Porters, but The A. I. Root Co. has secured control of the sale for this country. Order of your dealer or of

THE A. I. ROOT CO., Medina, Ohio.



We can fill Your Orders

for Dovetailed Hives, Sections, Foundation, etc., by Return Mail. Have A. I. Root Co.'s goods at Their Prices. Will save you freight, and get goods to you in a few days. Catalog free.

JNO. NEBEL & SON, High Hill, Mo.

The Best of Untested Queens.

50 cents each. \$6.00 per doz.
Queens warranted purely mated, 70 cts. each.
Tested. \$1.00; \$10.00 per doz.

Queens are from imported and home-bred mothers; are large, vigorous, and prolific. Orders filled promptly. Safe arrival and satisfaction guaranteed.

J. W. K. SHAW & CO., Loreauville, La.

GOLDEN QUEENS

Bred for business. Untested, 65 cents each; 6 for \$3.25. Tested, \$1.00 each. Fine breeders, \$2.00 each extra. Select straight 5-banded breeding-queens, \$4.00 each. To all new customers one **GOLDEN QUEEN** for 50 cts. Satisfaction and safe arrival guaranteed.

E. A. SEELEY, Bloomer, Ark.
P. O. Money Order office, Lavaca, Ark. 7-20

W. O. Victor, of Wharton, Tex., took

45,000 Lbs. of Honey in 1894.

He offers Italian Queens—good, old-style honey-queens—untested, first order, to any address, at 50c each. Also bees in any quantity: 450 colonies to draw from. **Root's goods constantly in stock.** Prices to suit the times. Buy near home, and save freight.

World's Fair Medal

Awarded my **Foundation**. Send for **free samples**. Dealers, write for wholesale prices. Root's new **Polished Sections** and other goods at his prices. **Free Illustrated Price List** of every thing needed in the apary. **M. H. Hunt.**
Bell Branch, Mich.

Tested ♦ By mail, in July and August, 50 cents each.
Queens ♦ **J. C. Wheeler, Plano, Ill.**

☞ In responding to this advertisement mention GLEANINGS.

Promptness is What Counts.

Honey-jars, Shipping-cases, and every thing that bee-keepers use. **Root's Goods at Root's Prices, and the Best Shipping-point in the Country.** Dealers in Honey and Beeswax. Catalog free.

WALTER S. POWDER,
162 Massachusetts Ave., Indianapolis, Ind.



IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians**, the result of 16 years' careful breeding.

Dr. H. B. Lung, Harrodsburg, Ky., says: "I have had the pleasure of seeing many fine strains of bees, yet I have never seen such industrious, energetic bees. I must express my admiration for your success as a bee-propagator."

Warranted queens, 80c each; 3 for \$2.00. Select warranted queens, \$1.00 each. Safe arrival and satisfaction guaranteed.

Those who have never dealt with me, I refer to A. I. Root, who has purchased of me 808 queens. Circular free.

J. P. MOORE, Morgan, Pendleton Co., Ky.

☞ In responding to this advertisement mention GLEANINGS

BEGINNERS.

Beginners should have a copy of the Amateur Bee-keeper, a 70-page book by Prof. J. W. Rouse. Price 25 cents; if sent by mail, 28c. The little book and the Progressive Bee-keeper (a live progressive 28-page monthly journal) one year, 65c. Address any first-class dealer, or

LEAHY MFG. CO., HIGGINSVILLE, Mo.

☞ In responding to this advertisement mention GLEANINGS

MUTH'S HONEY-EXTRACTOR, SQUARE GLASS HONEY-JARS.

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "**Practical Hints**" will be mailed for 10c in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.

Golden Queens From Texas.



My queens are bred for business, as well as for beauty and gentleness. Safe arrival and reasonable satisfaction guaranteed. Untested, 75c; warranted, \$1.00.

Write for price list. 5-16c

J. D. GIVENS, Lisbon, Texas. Box 3.

"The Market Garden."

A Monthly Journal

For Market-Gardeners and Truckers.

50 Cents a Year. Sample Copy FREE.

THE MARKET GARDEN CO.,
Minneapolis, Minn.

☞ In responding to this advertisement mention GLEANINGS

TAKE NOTICE!

BEFORE placing your orders for **SUPPLIES**, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. **PAGE & LYON MFG. CO.,**
St. Louis, Mo. New London, Wis.

Please mention GLEANINGS. 21-80b

Warranted 95 per cent of Queens Purely Mated,

at 50 cents each; 6 for \$2.75, or \$5.00 per dozen, from a Golden breeder obtained of Doolittle, which he selected and tested out of 1000 queens, for his own special use, or from one of A. I. Root's very best imported breeders. Bees from my queens are gentle, and excellent honey-gatherers. No disease.

Ask for free circular. Satisfaction and safe delivery guaranteed.

H. G. QUIRIN, Bellevue, Ohio.

"The Southland Queen."

Send \$1.00 for the Southland Queen. Edited by the Atchley family. Plain, practical, and all fresh bee matter. Jennie Atchley will begin a Bee-keeping school in June 15th No. All that wish lessons, come in. A steam bee-hive factory, Root's goods, Dadant's foundation. Send for free catalog and sample journal.

THE JENNIE ATCHLEY CO.,
Beeville, Bee Co., Texas.

Golden or Leather Queens

From the Queen Specialist. . . .

Golden queens from Duvall's best; dark leather queens bred from the celebrated Manum stock (queen mother selected and tested by him).

My drones are all bred from a colony that wintered successfully on summer stand without protection, bees gentle and excellent workers.

This colony is the result of seven direct crosses of golden Italians, selecting the most desirable for breeders each spring, regardless of color.

Nearly every queen mated with selected drones as there are no bees within several miles of my yard. Duvall strain will produce nearly all 5-banded bees, Manum stock 3-banded.

Price 75 cts. each. Safe arrival guaranteed, and shipped by return mail if desired.

Money-order office, North Dana. Address

JAMES WOOD,

North Prescott, - Massachusetts.

In writing advertisers mention this paper.

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation-made.

J. VAN DEUSEN & SONS,

1214db Sole Manufacturers,
Sprout Brook, Montgomery Co., N. Y.

In responding to this advertisement mention GLEANINGS



FREE COINAGE—16 to 1.

It is claimed by some that this would give us a double self-regulating standard, while others believe it would simply change the standard from one metal to another. There is no such uncertainty in regard to the **fence standard**. The Coiled Spring remains the universal unapproachable self-regulator for farm, railroad, and park purposes. If **ELASTICITY** can do for the currency what it has done for The Page, there'll be no opposition.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich

QUEENS!

Good,
Better,
Best.

The latter is what I am trying to furnish, with what success a long string of testimonials might startle you, as the season is now prime for the rearing of queens, and in competition with some other reliable dealers I will furnish to any new customer 2 Golden Queens for \$1.00; a straight five-banded breeder, \$3.00. Address

W. H. LAWS, Lavaca, Ark.

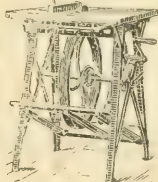
For Sale!

A Hawkeye camera, recommended by E. R. Root, of whom I purchased it 3 years ago, with instruction-book, plate holders, and plates, at \$37.00. Will sell for \$32.00. Has scarcely been used since, and has an excellent lens which alone cost over \$30.00. Also a World typewriter, in good order, for \$3.00; a copying-press, nearly new, for \$3.50; a Victor safe (new), list price \$60—will sell for \$45.00. A 4 H. P. portable engine and boiler, in good order, \$115.00; a rotary pump for lifting water for irrigating, in good order, for \$25.00; a counter-shaft, new, price \$10.00; also a lot of Dovetailed beehives, combs, foundation, and fixtures. Particulars on application. CHRISTIAN WECKESSER, Sanborn, N. Y.

3=Banded

TESTED
ITALIAN Queens,
from my own imported
queens, \$1.00 each.

Max Brauer, Beeville. Bee Co., Tex.



Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of beehives, etc., to make, and we expect to do it all with this saw. It will do all you say it will."

Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to

THE A. I. ROOT CO.

Please mention this paper.

FENCE



Why pay 60 to 90c. a rod for fence when you can make the
BEST WOVEN WIRE FENCE ON EARTH
FOR 13 TO 20 CENTS A ROD?

Horse-high, bull strong, pig and chicken tight. A man and boy can make from 40 to 60 rods a day. Over 50 styles. Illustrated Catalogue Free.
KITSELMAN BROTHERS
Ridgeville, : Indiana.



HONEY COLUMN.

CITY MARKETS.

KANSAS CITY.—*Honey.*—We are receiving new comb and extracted. New white comb, 14; extracted, white, 6½@7; dark, 4½@5. Demand good. Beeswax, 22.
HAMBLIN & BEARSS,
 Aug. 8. Kansas City, Mo.

PHILADELPHIA.—*Honey.*—The honey market is about the same as last quotations. Trade has been somewhat quiet, with only a small demand since the 1st of July. We look for a rather dull market until fall. We quote new-crop extracted, 5½@6½, in bulk; comb, 11@14, according to quality. Beeswax, 25@27.
WM. A. SELSER,
 Aug. 9. No. 10 Vine St., Philadelphia, Pa.

CINCINNATI.—*Honey.*—Demand is lively for new extracted and comb honey, all old honey being cleaned out. Arrivals are fair, but insufficient for the demand. Comb honey brings 14 and 15 for choice white. Extracted, 4@7. Demand is good for beeswax at 20@25 for good to choice yellow.
CHAS. F. MUTH & SON,
 Aug. 7. Cincinnati, O.

CHICAGO.—*Honey.*—New comb is selling at 15c, and so far has sold upon arrival. We quote amber to dark at 8@10@12, according to merit of same. Extracted white, in cans, 6½@7; dark grades, 5½@6. In barrels, about half a cent less, as is usual at this season; later there is little difference in price. Beeswax, 25@27.
R. A. BURNETT & CO.,
 Aug. 7. 163 So. Water St., Chicago, Ill.

BUFFALO.—*Honey.*—No new honey as yet in the market; still a slight amount of old on hand. No doubt fancy new comb would open up well at 14, possibly 15; choice, 11@12; other grades in proportion. Extracted honey would be very slow sale here. Beeswax, 25@30.
BATTERSON & CO.,
 Aug. 8. Buffalo, N. Y.

DETROIT.—*Honey.*—Best white comb honey (new), 13@14; supply light; no dark to quote. Extracted, 6@7. Beeswax dull, 23@25.
M. H. HUNT,
 Aug. 8. Bell Branch, Mich.

ALBANY.—*Honey.*—We received quite a few consignments of new comb honey. The quality is only fair, but it is selling off quite freely at 12@13. No. 1 would bring better prices. We have also received some extracted put up in glass jars which finds quite a ready sale—price depends on size, style, etc.
CHAS. McCULLOCH & CO.,
 Aug. 7. Albany, N. Y.

CLEVELAND.—*Honey.*—We received our first shipment of new honey, and sold it at 15c per lb.—fancy white, in 1-lb. sections. White extracted is scarce at 8c. Beeswax, 26@28.
WILLIAMS BROS.,
 Aug. 7. 80 & 82 Broadway, Cleveland, O.

BOSTON.—*Honey.*—The demand for honey is very light. Have had a few small lots of new comb which we quote at 16c. Extracted in fair demand at 5@6, with light supply. A small lot of new California extracted sold at 6½.
E. E. BLAKE & CO.,
 Aug. 8. Boston, Mass.

MINNEAPOLIS.—*Honey.*—Our honey market is in fine condition. Fresh arrivals of new honey are selling at 16@20, according to quality and condition. Strictly fancy white honey is jobbing in lots of five and ten cases at 18c; small way, 20.
J. A. SHEA & CO.,
 Aug. 3. Minneapolis, Minn.

DENVER.—*Honey.*—Our market is being well filled up with new honey, especially comb. There seems to be very little demand for extracted. We have been receiving quite a number of shipments for which we have been getting 10@11c. Our trade requires a No. 1 white grade, suitable for putting in our cartons. Extracted, No. 1 white, in 60-lb. cans (2 in a case), 6c. Beeswax, 25.
R. K. & J. C. FRISBEE,
 Aug. 9. Denver, Col.

KANSAS CITY.—*Honey.*—The receipts of new comb honey are very light, and demand fair. We quote new 1-lb. comb, No. 1 white, 14@15; No. 2, 12@13; No. 1 amber, 12@13; No. 2, 10@11; extracted, white, 6@6½; amber, 5@6; dark, 4@4½. Beeswax, 20@21.
C. C. CLEMONS & CO.,
 Aug. 8. Kansas City, Mo.

CHICAGO.—*Honey.*—We are having inquiries for comb honey, and expect our first receipts of fancy white to sell at 15c; our No. 1 white will bring 14c—no trouble to sell fancy honey. Second quality sells from 10 to 13, depending on condition. White extracted sells from 6@7, depending on flavor; dark extracted, 5@6.
S. T. FISH & CO.,
 July 30. 189 South Water St., Chicago, Ill.

FOR SALE.—Two carloads of prime mountain comb honey in 24-lb. glass-front shipping cases; labeled goods, full weight, 1-lb sections; 10 cts. per lb. on the tracks here. **A. B. MELLEEN,** Acton, Cal.

FOR SALE.—White comb honey, 14 and 16c. on board cars. **G. R. ROUTHAWN,** Menallen, Pa.

ALFALFA IN ARIZONA.—We will sell you alfalfa honey F. O. B. Phoenix at 4½c in 1000-lb. lots or more. Less than 1000 lbs. at 5c in five-gallon cans. Car lots a specialty. **J. P. IVY,**
 Secretary Bee-keepers' Association,
 Phoenix, Maricopa Co., Arizona.

ALFALFA HONEY, very white, thick, and rich. Two 60-lb. cans at 7c. Same, partly from cleome (tinted), 6c. Samples, 8c.
OLIVER FOSTER, Las Animas, Col.

S. T. Fish & Co.,

189 South Water St.,

Chicago.

We handle HONEY every day in the year. Correspondence solicited. We have been twenty years at above location, and refer to

First National Bank, Chicago,
 First National Bank, Los Angeles, Cal.,
 First National Bank, San Jose, Cal.,
 Gleanings in Bee Culture, Medina, O.
 Your Banker can see our rating.

—ALSO DEALERS IN—

BUTTER, CHEESE, EGGS, APPLES,
 POTATOES.

Our facilities for selling unsurpassed.
 Reserve our address for future reference.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 189 S. W. and Prompt.

CHAS. ISRAEL & BROS.,

486, 488 & 490 Canal St., Corner Watts St., N. Y.

WHOLESALE
 DEALERS &
 COMMISSION
 MERCHANTS.
 Established
 1875.

HONEY
 —AND—
BEESWAX.
 LIBERAL
 ADVANCES
 MADE
 ON
 CONSIGN-
 MENTS.

In responding to this advertisement mention GLEANINGS.

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CONVENTION NOTICES.

There will be a meeting of the Southeastern Bee-keepers' Association in Fort Scott, Kan., Sept. 19th, 1895. All are cordially invited.
J. C. BALCH, Sec., Bronson, Kan.

The annual meeting of the Northern Illinois Bee-keepers' Association will be held at the residence of O. Taylor, in Harlem, Ill., on Tuesday, Aug. 20, 1895.
B. KENNEDY, Sec., New Milford, Ill.

The Southwestern Wisconsin Bee-keepers' Association will hold its next meeting at Platteville, Wis., Oct. 8th and 9th, 1895. Come all! Don't get discouraged even if we haven't got a crop of honey. We shall have a good time at Platteville just the same. Bring your wives and daughters with you. Many interesting subjects will be discussed.
M. M. RICE, Sec., Boscobel, Wis.

Wants or Exchange Department.

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 26-in. planer, power scroll saw, all iron; tenoner, and mortiser, for portable sawmill, or other wood-working machinery. Will give a bargain for cash.
GEO. RALL, Frenchville, Trempe Co., Wis.

WANTED.—To exchange foundation-mills and honey-extractors for honey or wax.
I. J. STRINGHAM, 105 Park Place, New York.

WHAT have you to exchange for a 200-egg size Invincible Hatcher?
G. J. STURM, Mt. Erie, Ill.

WANTED.—To buy 2 tons extracted white-clover honey, in 60-lb. tins.
GEO. G. WILLARD, 270 Pearl St., Cleveland, O.

WANTED.—To exchange latest improved Marvel magic lantern, best quality (cost \$45), also 100 choice views, for honey, beeswax, or offers.
E. E. SLINGERLAND, Troy, Pa.

WANTED.—To exchange bees in new 8-frame L. hives for a ladies' bicycle.
W. D. SOPER, Jackson, Mich.

WANTED.—To exchange some fine St. Bernard pups. I have some extra fine ones and will exchange for honey, or any thing useful. I want a bicycle. My pups are from registered stock. Write at once.
SCOTT BRILLHART, Millwood, Knox Co., Ohio.

WANTED.—To exchange about 4 bushels of Egyptian onion-sets, strawberry, blackberry, and raspberry-plants, for foundation, sections, or offers.
D. NOBLE, Clintonville, Wis.

WANTED.—To correspond with all who have honey to sell.
F. N. JOHNSON, Box 137, Knoxville, Knox Co., Ill.

WANTED.—To exchange English Beagle hound female, in whelp, for repeating-rifle, extracted honey, or offers.
D. S. HALL, So. Cabot, Vt.

Aluminum Bicycles, 15 Lbs.

Steel Bicycles, highest grade, factory price, \$125.00; my price, \$65.00. Send for catalog.

ROBERT B. GEDYE, La Salle, Ill.

Bees & Queens AS GOOD AS THE BEST. One 2-frame nucleus with untested queen, \$2. With tested queen, \$2.50.
JAY BLASDELL, Morton Corners, Erie Co., N. Y.
Money-order office, Springfield, N. Y.

ROOT'S GOODS at ROOT'S PRICES FOR THE WEST.

Order of us and save freight. Goods at wholesale and retail. A full line of Dovetailed Hives, Sections, Foundation, Extractors, and every thing else of the latest and best.

JOSEPH NYSEWANDER, Des Moines, Iowa.

QUEENS!

Either golden or leather colored. Un-
tested, 45 cts. each. Golden are of the
Doolittle strain. Leather queens from
best imported mothers. Tested queens,
this season's rearing, 3 band, 60c; 3 band
breeders, \$1.00. No better queens can be
had anywhere at any price. Safe arrival
and satisfaction guaranteed. No dis-
ease. No stamps.

L. H. ROBEY, Worthington, W. Va.

Stingless Bees! See page 525, GLEANINGS,
June, 1895.
H. ALLEY, Wenham, Mass.

Queens, Either 3 or 5 Banded.

60c each; 6 for \$3.25. These low prices are to induce you to try them. Catalog free.

CHAS. H. THIES, Steeleville, Ill.

Don't Be Afraid to Buy

those fine, tested Italian queens I am offering for 65 cents, just because I offer them so cheap. It is not on account of any inferiority that I sell them so cheap, but because I replace, every year, all of my queens in over one hundred colonies, run for honey production, and what I get for the old queens I consider just like finding. A good many are sold already, but there is a fine lot on hand yet, equal to any in the country. A few mismatched ones at 30 cts. each.

T. H. KLOER, Terre Haute, Ind.

Please mention this paper.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they wish to dispose of, we will insert notices as below, first insertion free of charge. After the first, 10 cents per line. We do this because there is hardly value enough in these queens to pay for buying them up and keeping them in stock, and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

About ten mismatched Italian queens for sale at 30 cents each, or 4 for \$1.00. They are all nice queens, young and prolific.

W. F. STUART, Box 415, Ottawa, Kan.

Twenty or twenty-five extra choice mismatched queens, reared this season. Imported and Doolittle queen mothers, 30 cents each, or 12 for \$3.00.

L. H. ROBEY, Worthington, W. Va.

A Letter

From A. Norton, of Monterey, California, reads as follows: "The queen that you sent me arrived in fine condition in twelve days from the time I ordered her. (It takes six days for mail to go from here to California.) Twelve hours later she was introduced, and in twelve more was laying. I thank you for your promptness and for the beauty, and excellence of the queen." From neighboring States I frequently receive reports of queens being received and introduced within three days from the time the order was sent. I not only advertise to send queens by return mail, but I do do it, and sell tested queens of this year's rearing for only \$1.00 each, or six for \$5.00. One queen and the REVIEW for \$1.50.

W. Z. HUTCHINSON, Flint, Michigan.

Five Assistant Bee-Editors

Please cut out this whole ad. and sign and mail it to—
56 Fifth Ave., Chicago, Ill.

Please send to me the AMERICAN BEE JOURNAL for 3 months (13 numbers). At the end of that time I will send \$1.00 for a year's subscription, or 25 cts. in case I decide to discontinue. You will please address me thus:



Sample Copy Mailed Free!

Name.....

Post-Office.....

State.....

Proof Beyond Doubt.

A customer, looking over my 400 hives in home apiary, said, "Where are your bees? Mine were flying all around thick this morning." I said, "Just stop; look down at any hive." He was amazed. They were just pouring in thick with their heavy loads. This proves two things—they can't be excelled as workers, and quiet.

I opened several hives. He had no veil; was in the apiary $\frac{1}{2}$ of an hour; was not bothered once. Try them. Untested guaranteed queens, 75c. Send for wholesale price list.

Wm. A. Selser,
Wyncote, Pa.

The Bottom is Out!

For the next 60 days we will sell warranted purely mated queens at 55 cents each; six, \$3.00; tested, 75 cts. each; six, \$4.00. All queens sent by return mail. Satisfaction guaranteed. Address
LEININGER BROS.,
Ft. Jennings, - Ohio,

Headquarters in Missouri For Root's Goods.

Can supply you with all the fixtures used in an apiary. Best goods at lowest prices. Catalog free
JNO. NEBEL & SON, High Hill, Mo.

SECTIONS, BEE-HIVES, SHIPPING-CASES

We make a specialty of these goods, and defy competition in quality, workmanship, and prices.

Write for free, illustrated catalog and price list.

G. B. Lewis Co., Watertown, Wis.

In responding to these advertisements mention this paper.

A Full Line of Popular SUPPLIES

Always on hand.

1 lb. sq. flint jars, \$5.00 a gross, sent from this city. Untested queens, now ready, 75 cts. After July 10th, 3-frame nuclei and Italian queen, \$2.50. Discount on quantities. Catalog free.

I. J. STRINGHAM,
105 Park Place, New York.

Dovetailed Hives.

Sections, Extractors, Smokers, and every thing a Bee-keeper wants. **Honest Goods at Close Honest Prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

IMPORTED QUEENS, \$3.25; untested, 50 cts. W. C. FRAZIER, Atlantic, Iowa.

QUEENS. IMPORTED ITALIAN MOTHERS ONLY.

Untested, 55 cts.; doz., \$6. About 11 out of every 12 will make fine tested queens, and for gentleness and industry we defy the world to beat them. Safe delivery. Money-order office, Decatur. eiff

CLEVELAND BROS., Stamper, Newton Co., Miss.

FOR SALE.
ITALIAN BEES AND QUEENS.
QUEENS, 75 CTS.
MRS. A. A. SIMPSON, SWARTS, PA.

If Tons of Honey,

Pleased Customers, and Increasing Trade is a criterion, then my queens are satisfactory. Warranted purely mated queens from 5-banded strain, 75c; six for \$4.00; dozen, \$7.50. Safe arrival and satisfaction guaranteed. Send for free circular.

J. B. CASE, Port Orange, Vol. Co., Fla.

GLEANNINGS

A JOURNAL
DEVOTED
TO BEES
AND HONEY
AND HOME
INTERESTS.

BEE CULTURE

ILLUSTRATED
SEMI-MONTHLY
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Vol. XXIII.

AUG. 15, 1895.

No. 16.

STRAY STRAWS

FROM DR. C. C. MILLER.

I'M FOR THE UNION of the Union with the North American. [That's right.—Ed.]

THE KANUCKS seem to be getting things in good shape for the Toronto convention.

CRIMSON CLOVER when in bloom is pretty enough to afford a bed of it room in a flower-garden.

THE *Revue Internationale* contains an account of a successful case of transferring bees in midwinter.

I'VE SEEN TWO BEES working on sweet clover, with pollen on their legs. It didn't look brown, like white-clover pollen, but was a sort of faded yellow.

"THE TALENT of success is nothing more than doing what you can do well, and doing well whatever you do—without a thought of fame."—Longfellow.

THE PLAN for determining adulteration in wax by means of carbonate of soda is denounced in *Revue* as worthless. [What is the plan, in brief? I'd like to try it.—Ed.]

A REPORT on p. 596 says bees in Florida have made two tons of honey. If one colony has done that, it's big; but if it means all the bees in the State, it's rather poor.

IF CRIMSON CLOVER will not stand the winter so far north as this, perhaps a spring sowing would mature a crop of seed to pay expense and give a crop of honey extra.

THAT'S A GOOD IDEA of Wm. Russell, p. 599. Make the annual payment to the North American 25 cts., and then give full value for that money to all members who stay at home. [I agree with you.—Ed.]

THE *Canadian B. J.* says you can extract dark and light honey separately, even if in the same comb. Hold up to the light; uncap and extract the light patches, then the dark. I should think that would work nicely if too much brood has not been raised in the comb.

IT SEEMS that we can count 5000 bees in a pound when not loaded, and 3000 when loaded. That means a bee carries a load equal to two-thirds of its own weight. [These would be fairly correct for round numbers.—Ed.]

A HINT is hinted at in *Progressive*, that I'd better be giving a little grain instead of so much straw. Now look here; the sign-board over this shanty says "straw;" and when you make application here, straw's what you'll get.

DURING LINDEN BLOOM I watched bees on trees close by, and never saw but two bees during the season gathering pollen. I always supposed they got much pollen from linden. Can it be that they gather less pollen from trees close by?

BETTER PUT a couple more ciphers in that first column, p. 585, and make 7 or 8 lbs. of bees count 21,000 or 24,000, instead of one-tenth that many. [Dear me! how could I have let such a mistake pass? We'll let this serve as a correction.—Ed.]

STRICTLY FANCY new comb honey is quoted in the honey column, page 580, at 12 and 13; and one firm says, "We anticipate a price of 14 to 15." I anticipate they'll anticipate a higher price than that before they're flooded with consignments this year.

"MUTUAL ADMIRATION" societies are getting some hard knocks nowadays. For one, I'm a hearty believer in such societies. If I can't find a man in this world who has something in him to admire, and if no one in all this world can find a single thing in me to admire, then I want to get out of this world right away, quick.

DID YOU EVER know a queen to lay an egg in a cell containing pollen in a normal colony? I have seen such a case, and I wonder whether such eggs hatch out. [I have known of drone-laying queens, and laying (or fertile) workers laying on top of pollen, but never a normal queen that laid eggs that would produce worker brood.—Ed.]

THE PROBLEM of controlling fertilization of queens seems to have no one working on it nowadays. Can't some one dream out a solution? So far the solutions seem to have been nothing

but dreams, like the one sent out, under government authority, as a positive success. [There is a method, and it is practical. See article by James Wood, in this issue.—Ed.]

NO WONDER that poor fellow at the head of "Reports Discouraging," p. 596, looks discouraged when you set him on his head. [You were sent the first sheet off the press. The mistake was rectified before many had been run off. That page was all made over after its first reading, and the heading was misplaced by accident.—Ed.]

THE VAST DISTANCES of this country have always been given as the reason for the small membership of the N. A. B. K. A. Don't be fooled by that any longer. It has to do with the attendance but not with the membership. If we were as bright as the stolid Germans we could get members to belong, even if they never attended. [You're right.—Ed.]

HOW MANY BEES in a strong colony? J. L. Hyde, p. 585, sets it at 25,000; but surely that's very low. A 9-lb. swarm contains 27,000; and before the colony swarmed it contained many more. Years ago Donhoff figured that 63,000 was the maximum number in one colony. I suspect it may go beyond that; but I don't know. [I think Hyde is nearer right, because his weights agree with what I secured a number of years ago. Estimates are liable to be too high, any way.—Ed.]

OUR AUGITE STOVE-MATS are losing their power, after long and faithful service. It seems ridiculous to think they can be replaced for five cents each; but they would be replaced, even if they cost ten times that. If your wife has none, surprise her by your thoughtfulness in getting something that will save many an hour of watching and stirring over a hot stove. Tell her she can put a dish of milk or oatmeal on a hot fire for an hour without burning, and she'll not believe you till she tries it.

PARALYSIS. Here's a cure given by James Carmac, in *Progressive*: "Remove several frames from the center of the hive, with the one with the queen (if she is valuable), as a drop kills as if scorched with a hot iron. Sprinkle the bottom-board with a tablespoonful of the mixture—equal parts of benzine and turpentine—replace the frames, and close the hive." After this treatment, used three times, his bees recovered; but he is wise enough not to feel sure that it was the treatment that cured. [Bee-paralysis so often goes off of itself without treatment that I don't believe the benzine mixture had any thing to do with the matter.—Ed.]

A FRIEND is considering the advisability of using chemical fertilizers for strawberry-beds in preference to barnyard manure at 75 cents a load on the ground. He thinks freedom from weed-seeds may make up for difference in cost.

What does A. I. think? [This has often been suggested; and in the East, on sandy soils, I am told they raise nice strawberries by the aid of chemical fertilizers. In our locality, however, I have never been able to find any chemical fertilizer at any price that would take the place of stable manure at all on strawberries. To tell the truth, they hardly show any results. Of course, guano tells every time; but this can not be called a chemical fertilizer. Application of ashes has also given some excellent results, after having manured the ground heavily with stable manure previously.—A. I. R.]



TEMPERAMENT OF BEES.

HOW FAR SHOULD WE TAKE IT INTO ACCOUNT?

By S. E. Miller.

Do we not often make mistakes in managing our bees, in thinking that one colony should act and do just like another colony under the same conditions? Do we make due allowance for the difference in disposition or temperament of our numerous colonies? A colony of bees must, to a certain extent, be considered as an individual so far as the mind—or, perhaps, more properly, their instinct—goes. We all know that a colony works under a single impulse—that is, what is the motive of a few is the motive of the entire colony; so we must consider a colony as having a single mind. All work together for the common good of the colony. Certainly, when a bee darts from the hive that we are working over, and dips us over the eye, we are glad that the entire colony is not seized with the same impulse at the same moment; nevertheless, there is a controlling passion which seems to have the same influence over the entire colony at the same time.

Let us look for a moment at the higher order of animals and see the difference in dispositions. Take, for an example, man. Among thousands you will not find two exactly alike in temperament. Then take horses, with which some of us are accustomed to work almost every day. One will be wild, vicious, and hard to manage; while another, having the same treatment, may be docile and gentle.

Let us go still lower in the scale of the animal kingdom, and notice a flock of poultry. Here is a brood of fowls that were hatched out in the field or forest. One hen laid the eggs, hatched them, and reared the chicks up until they were large enough to scratch for themselves. We should suppose that this brood would be very much alike in disposition when they arrive at maturity; but such is not the case. Some are apt to be shy while others are tame; and in

many ways we may notice a variation in their dispositions.

The above may seem foreign to bees; but I have alluded to it to show that there is a variation in temperament among the same species in the animal kingdom.

Let us now go to the apiary. There are two colonies, apparently just alike. We know they are very nearly alike so far as strength and the amount of stores they have is concerned; and the one colony might be expected to do just as the other does, yet the one colony is storing honey quite rapidly while the other one is doing very little. Here are two colonies very much alike, that we gave supers to at the same time. The one has the super half filled, and is working nicely, while the other has not even begun. Here is a colony that builds very straight even combs, while some of the others build crooked, bulged, and uneven combs, although their conditions are very much alike. Over there is a colony that will not accept a queen, but will kill queens as fast as you introduce them, and insist upon rearing one of their own so long as there is a shadow of a chance—that is, as long as they have any unsealed larvæ to rear one from. No matter if the larva is several days too old, they insist on having one of their own rearing. Their nearest neighbor may be a colony that will accept a queen by merely taking away their own and giving them another, say twenty-four hours later. One colony will cast a swarm before the hive is more than two-thirds full of brood and honey, while others will wait several days after their hive is chock full.

To what, then, can we attribute this difference? Where all are in the same apiary it can not be laid at the door of location, for the resources of one colony are available alike to all that are of sufficient strength to send a full working force to the field.

We are forced to the conclusion that there is a vast difference in the dispositions of different colonies, or, perhaps, we might say, a particular individuality peculiar to each colony. When we consider, then, the different climates to which bees are subjected, the difference in the flora, and the difference in the time of year that the main honey crop is gathered in different parts of the world, is it to be wondered at that all bees in all places do not act alike? Is it surprising that a hive and a particular system of management that work well in one part of the country are failures in another and widely separated location? Is it strange that we have not, can not at present, and, perhaps, never will, all agree on any particular size or shape of hive or any particular system of management?

I could continue further in this line; but as my article is becoming long I will try to come to the point which I started to bring out. Can we not, perhaps by studying the nature and particular characteristics of each colony, be enabled to manage them with greater success and

profit? Would it not often be better to yield to the particular whims of a colony, or at least compromise matters, than to undertake to make them do altogether according to our ways of thinking, when our way may be in direct opposition to what is the height of their ambition or desire?

Probably there are few if any bee-keepers, who use modern hives, that have not at some time tried to prevent a colony from swarming, and by so doing caused them to sulk until the honey-harvest was past, and thus obtained nothing from a colony that, by proper management (that is, by humoring them in their desire to multiply, and replenish the earth), might have been induced to store considerable surplus honey.

In my mind there is no doubt that some colonies will build comb much more readily than others. To put such at storing honey to be extracted, and those that are disinclined to build comb at work in the sections, would certainly be a mistake; and yet how many of us pay any attention to this in putting on the surplus receptacles?

The above is a subject which I do not recollect having seen discussed in any of the bee-papers, and I feel that I have made only a feeble effort; but if it should call forth thought and advice from some of the leading lights in bee culture, it may be of use to the fraternity.

Bluffton, Mo.

[This article is clear and logical, and the writer draws some very practical conclusions. One in particular is, yielding to the whims of particular colonies.—ED.]

WHY SHOULD THERE BE SUCH A VARIETY OF OPINIONS?

BEEES ON STRAWBERRY-BLOSSOMS; HAVE THEY BEEN KNOWN TO INJURE THE FRUIT ITSELF? HONEY-DEW AS A WINTER FEED FOR OUTDOORS AND INDOORS, AND THE DIFFERENCE IN RESULTS.

By W. S. Fultz.

In the controversy just now going on in the various bee and agricultural journals, it is asserted by some that bees do not work on strawberries while in bloom; and by others that they do. While I never knew the bees to work on strawberry bloom at any time during 22 years' experience as a fruit-grower, yet I am not prepared to assert that they do not so work. In my location bees usually find honey from other sources just at the time strawberries are in bloom; and as there is little or no honey in strawberry bloom they are not going to leave better pasture to forage on that which is poorer.

In other localities it is probable that, just at the time the strawberries are blooming, there is no other source from which the bees can get a living, and they then resort to the strawberries. When this country was first settled, and

the Mormons were at Nauvoo, Ill., they sent some of their elders to preach, and set stakes in this part of Zion, and many of these elders were very illiterate, considering the work they were expected to do. On one occasion two of them had an appointment to preach in a schoolhouse near here; and when about to announce his text, the one who was to preach stated that he had forgotten to bring his Bible, but that his text would be found in the book of Exodus, and read like this: "And Bezaleel made the ark."

"Hold on!" exclaimed the other elder, "it was Noah who built the ark; everybody knows that."

"Brother," said the first elder, "I believe I know what I am about, and I say it was Bezaleel who made the ark; and if some good brother or sister has a Bible here we will soon settle our dispute."

A Bible was procured from a house near by, and the first elder turned to the 37th chapter of Exodus, and read: "And Bezaleel made the ark of shittim wood," etc. Explanations were in order, and it was apparent that the two elders had different arks in their minds, and that a little explanation by elder No. 1 would have made a controversy impossible. If we were to take a wider view of many of the disputes that arise we should often see that there is really no occasion for a dispute.

In the *American Bee Journal* for July 18, Mr. J. A. Nash, of Monroe, Ia., gives an account of getting a great deal of honey-dew honey a few years ago, and he blames that honey for the destruction of his bees during the following winter and spring. As all bee-keepers in this part of Iowa had an experience with that kind of honey at the time, and as some of us wintered our bees successfully on it, I felt inclined to dispute his statement that it was the honey-dew that was so detrimental to his bees; but when I come to consider some of the facts I am inclined to think he is right. He wintered his bees in a cellar, and I wintered mine in chaff hives on their summer stands; and it is possible that my bees were enabled to take a purifying flight during the winter, without being unnecessarily disturbed, while his were not, and that may have made all the difference between success and failure.

During the fall of 1871 our bees here gathered much of that honey-dew honey, and at that time we knew nothing of chaff hives, and resorted to cellar wintering, and almost all of the bees in the country died.

If at any time before our strawberries ripened this year any one had asserted that bees worked on ripe strawberries I should have said that it was a mistake, as I had never, in my long experience as a fruit grower, seen a single bee on a ripe strawberry; but this year my bees attacked what few strawberries had escaped the frost of May 13th, with a fury that was ir-

resistible. As only myself and boys, who were used to handling bees, did the picking, they did not drive us out of the patch as Mr. Wm. C. Ashby says of himself in the *American Bee Journal*; but they did ruin fully half of the crop; and as berries were scarce and high-priced, the loss was a serious one. My loss by bees working on strawberries and raspberries this year will aggregate more than all the bees and honey that I have sold from an average of 30 stands of bees in ten years; and yet there are plenty of writers on bee culture who will assert that bees never do any damage to fruit of any kind.

Bees, like human beings, will try to live on any thing that gives a promise of appeasing hunger when starvation drives them to it; and bee-keepers certainly owe it to horticulturists that they feed their bees and keep them at home at times when starvation drives them to destroy fruit.

When picking strawberries and raspberries I noticed that, during the morning and until about 9 o'clock, when the bees were knocked off the berries they were quite lively, and either flew away or else to another berry; but after about 9 o'clock, if knocked off they fell to the ground and acted as if intoxicated. Did the berry-juice have that effect on them? No berry-juice, so far as I could ascertain, was carried to the hives.

Our blackberries were a complete failure. From two acres I did not get a single box. The drouth used up what the frost did not kill. This week we have had five inches of rainfall, and the drouth is broken.

Muscatine, Ia., July 20.

[I think we can not question that the bees do at times work on strawberry-blossoms; neither can we question that they may, in very rare instances, attack the fruit itself while on the vines. I do not remember to have read a report of their having done so before; and I should say the case you mention is most unusual; still, we must not conceal the facts. I don't have much sympathy with that class of bee-keepers and bee-journal editors who insist, in spite of all the facts to the contrary, that bees will not attack ripe fruit. Careful and conscientious bee-keepers who observe matters closely know that they do at times when there is a great dearth of nectar from natural sources. The cases, however, are not frequent; but to deny them all is to do more harm than good.—Ed.]

NO HONEY AT DR. MILLER'S.

THE QUESTION OF BROOD CHAMBERS, LARGE OR SMALL, DISCUSSED.

By Emma Wilson.

We are disappointed in more ways than one in not having any honey crop this year, as there were so many experiments that we wanted to try. They had to be postponed last year on account of the failure, and it is rather discouraging to know that they will have to go

another year for the same reason. One of the things we were very anxious to decide upon was the size of hive we want. We were trying some with 11 frames, some with half-stories under the eight-frame hives, and some with two full stories, or 16 frames. For myself I feel pretty sure I want the frames all in one story. Two stories makes too much lifting. I don't know that Dr. Miller agrees with me in this.

I am afraid the eight-frame hive is not large enough; in fact, I'm sure eight frames are not enough for some of our colonies in the spring. As I said in my last article, some of our colonies had as many as eleven frames of brood. But I believe eight frames are enough during the honey-harvest. I should dreadfully hate to give up the eight-frame hive. It is nice to handle, and makes the hauling to out-apiaries far easier. But then, when I think of the big crops of honey we used to have with the larger hive, I wonder if it's the eight-frame hive that's the trouble, or have the seasons changed? and are we never to have any more honey crops? I do not think the size of hive has made any difference with our crop this year or last, for there has been no honey to be had, either for large or small colonies.

We certainly did not have the swarming with the larger hives that we have had with the eight-frame hives. But there may be another reason for that. We always, during the honey-harvest, left a small opening at the back of the hive, for upward ventilation, and a current of air was constantly passing through the hive, that may have helped a good deal to prevent swarming. We have not been giving this ventilation since we have had the eight-frame hive in use. The bees will not finish up the sections quite so quickly at the back end when the ventilation is given, and for that reason we have discarded it. But I'm not sure but it's a good thing to have the ventilation nevertheless.

For the last two or three years we have been placing small blocks at the corners under some of our hives, raising them $\frac{3}{4}$ of an inch from the bottom-board, leaving an opening all round, and I believe it's a good thing. It gives them more air, and it may help to prevent swarming—not that we're troubled with swarms at present. We've not had any this year, and are not likely to have. I'm not fond of swarming bees, but I would even put up with the swarms if the honey would only accompany them.

There is one thing I don't like about our latest eight-frame hives, and that is the dummy. It is made of two pieces, and some of them warp and bulge at the center. Dr. Miller says the trouble is they are made of basswood.

Oh, yes! another thing I don't like. The hive is not wide enough to suit me. I want a little more room to get the dummy out. The way I generally do now is to pry out a frame first and then remove the dummy, or else leave the dummy in. I am speaking now of the hives with

the first Hoffman frames with the wide ends to the top-bars and the end-bars with square edges. These have been in use some time, and the bee-glue has accumulated about a sixteenth of an inch. Of course, that makes about half an inch less room in the hive. We ordered fifty hives last year having narrow ends to top-bars and V edges to end-bars. They are all made with frames wired ready for use, but we have not as yet succeeded in getting bees into many of them. They may be better. We have not had much chance to try them.

Marengo, Ill.

[You would not have trouble with the dummies providing you had in use the latest Hoffman frames. Those that you refer to were the very first we put out, several years ago, and we sold only a very few of them, as we saw at once it would be necessary to change them. Sometimes I remove the dummy first, and sometimes the brood-frame, but more often the former. The dummy—or, as we call it, the division-board, is now made so as to have a projection that facilitates very greatly its removal. I very often pry over the entire set of frames clear to one side. This gives ample room for the removal of the division-board; then I split the brood-nest perpendicularly at any point desired, and remove a frame if I wish to.—ED.]

RAMBLE 138.

IN THE GOLD-MINES.

By Rambler.



ESIDES the bee-keeping profession, Mr. Schaeffle is a mining expert, and he bears the U. S. Government's say-so as proof of it. He has had much experience in this science in Colorado as well as in

California. He has traveled over a good share of Northern California in the mining interests; and, always having an eye open to the bee-keeping interests, he can give much interesting information in relation to the honey-flora of this portion of the State. He claims that the counties of Lassen, Modoc, and Shasta, are practically undeveloped so far as bee-keeping is concerned; and, owing to the large area covered with sage, the quality and yields would equal the more favored South. Thus far, however, the cost of transportation from those wilds would hardly warrant trying the experiment of bee culture on a large scale.

In the early mining days, Murphy and all of these towns in Calaveras Co. were surrounded by placer diggings. The surface has been torn and upheaved with the pick and the spade, and the best of the soil has been sent down stream with the washings, while millions of dollars in golden nuggets have been taken from the pan and the rocker. In some places the surface of the country is honeycombed with

miners' claims; and where they sank their shafts (or we might call them wells) to bed-rock, as a miners' claim is 16 feet square, these holes became numerous. But the palmy mining days have become a story of the past; and only debris, and holes caved in and hidden with brush show where the men toiled for gold. Now and then an old miner strikes a little "pay dirt," as he terms it, and, by the side of a little stream of water, works out with his rocker a paltry two bits a day, or even less.

Quartz-mining has taken the place of all other methods; and to even start one of these mines requires as much of a fortune as would satisfy an ordinary bee-keeper. The largest of these mines are located in Angels. The Utica mine gives employment to some 600 men, taking out \$250,000 per month. The mill operates 180 stamps; each stamp weighs 850 lbs.; and

But another sound comes to the ears. The poor sewing-woman in the garret, the laboring man on the street, raise the earnest cry, "Silver, silver; good silver." The farmer and the bee-keeper sing the refrain, "Root of good, root of good; silver, silver." The church-bells chime the silvery tones, and a day of rest, day of rest. The silver shout grows louder; the relentless rattle of gold for the rich has its day; the ballot brings peace and good will, and the thundering stamps now merrily shout, "Silver and gold! silver and gold!"

Mr. Schaeffle touched me on the shoulder, and the dream vanished. We went forward with our inspection of the mill; but "silver and gold, a day of rest, peace and good will," echo in my ears even unto this day.

The gold is liberated by crushing, and is caught in a quicksilver battery. This yields



A QUARTZ MINE AND MINERS.

its fall of five inches, to crush the ore, is about every two seconds. The reader may judge that the 180 stamps, all in one building, make a deafening roar—the earth trembles. These stamps continue their harsh music for 365 days in the year.

Amid the roar of the mill I fell into a sort of trance; and as I listened to the water gurgling under the stamps it seemed to say, "No Sunday here, no Sunday here." The ore, as it rattled continuously toward the stamp, said, "Root of evil, root of evil." The stamp harshly answered, "It is gold, it is gold." Out of the din and thunder of the stamp-mill the mind flashes to the far-off cities, and finds a connecting link in the soulless railroad corporations, and the din of railroad trains answers to the mine, "No Sunday here, no Sunday here." The rattle of traffic on the street echoes "Root of evil, root of evil." In the stock exchange the frenzied calls of the gamblers, the raps of the gavel, and the madness of the hour, re-echo, "It is gold, it is gold."

about 65 to 75 per cent of the gold. Formerly this was all that could be saved; but now the sulphurets, in which the waste gold went off, are saved in a large building called the chlorination-works. The process is quite complicated, and now 95 per cent of the gold is saved from the ore.

Mr. Schaeffle being upon sort o' fraternal terms with the superintendent, we were allowed to descend into the mine. A large bucket of boiler iron (that is what we should call it, but in miner parlance it is called a skep) is operated by a hoisting-engine and a wire rope that runs over pulleys in a tower fully 60 feet in height. The superintendent had gotten this drop on us, and ordered Mr. Wilder and myself into the skep, while he and Mr. Schaeffle clung to the rope and stood on the edge of the skep. We were provided with candles; but the miners have little lamps on the front of their hats. This allows a free use of the hands. The signal is given—a tap of a gong—and down we go—down, down. The shaft is 1000 feet deep, and

we stop at the 900-foot station. Here we crawled out of our skep and explored the underground world. Mr. S. and the superintendent kept up a running talk about shutes, stopes, veins, high grade and low grade, etc. The stretch of landscape is not very extensive in a mine. Tunnels run in various directions, and at different elevations from the main shaft; and here we found the miners at work with the aforesaid lamps on their hats. The drills were churning away with rapidity, operated by compressed air. After working the drill it escaped and kept a supply of fresh air in the

regulated cellar. Instead of the potato-barrels and apple-bins they have a good substitute in now and then a few boxes of dynamite; and I wish to say to my Prohibition brethren, that I here found a place where prohibition is a success. The owners of the mine prohibit smoking, and the use of any spirituous liquors. They think dynamite is quite elevating enough for all intents and purposes.

We returned to daylight via the wire-rope-and-skep route, and with Bro. Schaeffle we returned to Murphy. This town also has a hole of its own in the ground, made by nature;



CALIFORNIA REDWOODS.

mine. Some of the side tunnels were several hundred feet in the rock; and as we explored, the little cars of ore would squeeze past us. The men seemed to be perfectly contented, and quiet. I don't know whether they sing much in a gold-mine or not; but probably not, as their music has not much chance to expand. Bro. Wilder and I supposed we could see gold sticking out in chunks; but we saw not a sign of it. It is so fine in this rock that a magnifying-glass will scarcely reveal it.

Although we are down 900 feet, we have the same feeling that we experience in a well-

or, in other words, Calaveras Cave is considered a wonder. Mr. S. led us into this, which is 300 feet deep. The chambers were not large; but the stalactites and various formations were interesting. In the chrysanthemum-room we found beautiful white formations, in shape resembling the above flower. A thin curtain-shaped stalactite, when its various folds were struck with a stick, gave forth musical sounds, and a skillful operator could ring out a melody. This was called the "organ." This hole in the ground is also, in a certain sense, a gold-mine, for the owner of it exacts tribute from visitors,

and his income is profitable, for thousands of people visit the cave.

Fifteen miles from Murphy are the wonderful sequoia, or big trees. Our route was up the San Antonio, a fine trout-stream; and whenever we saw a deep pool in the tangle of rocks and trees, we had in mind our aforetime fellow-traveler Pryal, and his passion for the hook and line, and—bites.

Travelers are many times disappointed over some famous feature of nature, from the fact that their imagination has pictured the feature away beyond the reality; but in our case the giant sequoia were fully up to expectations; and the longer we lingered in the grove, the more majestic they appeared.

There are 90 trees in this grove, and they bear the names of generals and other noted men of the world. Ten of these trees are each over 30 feet in diameter, and over 325 feet in height. A few of these monarchs of the forest, having served their day and generation, have succumbed to the wear and tear of time and tempest, and are now prone upon the ground; and, though fallen, they are objects of wonder.

We spent one night camped under their tall forms; and when we departed we felt as though we had seen another of the grand features in nature, and a feature especially characteristic of this wonderful country.

We returned to Murphy again, and sojourned several days under the protecting care of Bro. Schaeffle. I found that Calaveras Co., though not so prolific in schoolma'ams as Humboldt Co., was nevertheless well supplied. One would suppose that my traveling companion had lost his entire heart in Humboldt Co., and that it would be many years before it would be entirely healed; but he had wonderful recuperative powers; and here we were, barely two weeks from those dashing Humboldt damsels, and other fair schoolma'ams were attracting his undivided attention. It was the wielder of the birch in the town of Angel that threatened to wreck us this time. The name "Angel," in contrast to Humboldt, as a prefix to schoolma'am, does really appeal to the imagination; and when Humboldt can so easily be construed into humbug, I could hardly blame my partner for his preference. I tried to show my friend the error of his ways, and our argument ran upon the qualities that constitute a terrestrial angel, with the following result:

"An angel, Bro. Wilder, of earthly frame, is fair,

Sylph-like, with flowing golden hair.

An angel! how ridiculous it sounds

Applied to schoolma'ams of quite two hundred pounds."

"Not so," quoth Bro. Wilder, with a little bit of ire;

"A red-haired girl I never did admire;

But a black-eyed schoolma'am, worthy to be won,

Is every whit an angel, e'en if she weighs a ton."

This condition of mind was a danger-signal not to be slighted. The ponies were harnessed, and we traveled rapidly out of Calaveras Co.; and that night, many miles away in Tuolumne Co., we camped in the shadow of the Golden-nugget apiary.

HOW THE MATING OF QUEENS CAN BE CONTROLLED.

QUEENS, AS A RULE, NOT MATED AT A DISTANCE FROM THE APIARY; AN INTERESTING EXPERIMENT.

By James Wood.

If this question is to be construed so as to apply to a certain individual drone, I answer no. If, as I understand it, we wish the queens mated to drones from a single colony, I answer yes. I know very well that I am stating what is not generally believed; but I am going to give you the facts just as I have observed them the past four seasons.

Let me first say that I am located at least three miles from any bees except my own. I have practically given up breeding five-banded queens; therefore I feel more free to give these facts than heretofore, as I did not wish to use the reading-columns to draw attention to what I had to sell.

In the spring of 1892 I purchased my first five-banded queen. I at once introduced her to a full colony, and began to rear queens, all of which mated with the three-banded drones, as no others were yet hatched. I tested a great many of these queens. They wintered well, and proved great workers; but now to the point I wish to prove. Their progeny showed nothing but bright three-banded bees. Not one queen in a dozen would show any five-banded bees; and what did, there was less than one per cent. Well, this mother-queen (my first five-bander) was given several frames of drone comb, and in the mean time I purchased another five-banded breeding-queen, and bred all my queens from her the remainder of the season. As soon as the drones began to fly from queen No. 1 I placed the drone-traps on every hive in my yard except this one. I now had drones in but one colony, that could fly. Now, nearly every queen that I raised after the traps were put on produced from 25 to 50 per cent five-banded bees, and a few, 95 to 100 per cent.

"But," says some one, "this proves nothing definite, as you used another queen to rear your queens that produced the five-banded workers."

Let us pass by 1893 and '94, which I might mention as seasons of experimenting, and come to 1895. I now have, at the beginning of the

season, drones from several three-banded colonies, and no others. I raise about 15 queens from my five-banded stock, and again only three-banded workers appear from their progeny, as in 1892. Later I trapped off the drones and allow only the golden drones to fly from a single colony as in 1892; and out of over sixty queens bred from the same mother there are only two that do not produce a large per cent of five-banded bees—a much larger per cent than in 1892. The two remaining queens produce some black bees, but mostly three-banded.

There are about a dozen colonies of black bees in very large box hives about six miles from here, and there is a good colony of drones in each one—that is, if the amount could be counted as a colony, and undoubtedly a thousand drones to my one.

I mention this to show you that queens do not mate to any great extent five or six miles away. There were a few colonies of black bees within a mile of me ten years ago, when I first began rearing queens. I had more trouble with them than I do with this horde of drones now, six miles away, although at that time I had a plenty of drones in nearly 40 hives. I might give many more facts that I have observed along this line, but I think I have shown that queens may be mated with selected drones from any desired colony, provided you are located far enough away from other bee-keepers. I could not give these facts had it not been for the five-banded bees. I will give them credit for giving new light on this subject, if nothing more.

North Prescott, Mass., Aug. 1.

[I have obtained permission to use a portion of a private letter accompanying this, that confirms, among many other letters that I am not at liberty to use, my position on the five-banded queens. Here it is.—Ed.]

THE REARING OF FIVE-BANDERS DISCONTINUED, AND WHY.

I have given up breeding the golden queens to any extent. You may be surprised, after the letter of recommendation I sent you from a customer in Canada. I have since called for reports from my customers who had purchased large numbers of me; also some of our best honey-producers. In substance, here is what one very successful honey-producer in Florida says:

"The 54 queens are beautiful, and produce handsomer bees than any others I have. I purchased several of Doolittle and Case last season. Your bees are very gentle, and, as a rule, good workers; but the two three-banded queens beat them all. The five-banders are bad about robbing, and I want no more of them. I dislike to say any thing against your bees, but I know you want the truth. D. R. KEYES.

"Wewahitchka, Fla."

You see, friend Root, that the two three-banded queens gave better satisfaction than any of

the other 52 golden queens. Last year your cry against them was, "They were cross." I never had any complaint on that score. I have always used gentle stock for breeding both drones and queens. This is the only complaint I have that they are robbers. But Mr. Keyes produces a great deal of extracted honey. I can see no difference in them in any respect in my locality, with the exception that they may not winter quite as well; but of this last I am not sure, as I have had some colonies winter splendidly. Mr. Keyes further said he would buy of me if I would breed three-banded bees. Customers in the North think they do not come out as strong in the spring as other bees. J. W.

HEDDON HIVE THE BEST SOLUTION OF THE HIVE QUESTION.

NO TROUBLE ABOUT THE QUEEN LAYING IN
TWO HIVE-SECTIONS AT A TIME; WHY MC-
INTYRE'S DOUBLE BROOD-CHAMBERS
WERE NOT A SUCCESS.

By J. E. Hand.

Mr. Root:—I see by the July 15th number of GLEANINGS the hive discussion has taken a new departure. Heretofore, I believe, the discussion has been confined chiefly to the Langstroth frame; and the difference in opinion has been about the number of such frames to be used in a hive to give the best results; and as I firmly believe the size and shape of brood-frame has even more to do with our success or failure in the production of surplus honey than the number of frames used, this question is of more importance to the honey-producer than the other. I believe that much good will result from this interchanging of ideas so long as the right spirit prevails; and as long as these discussions are carried on by practical honey-producers whose opinions are unbiased by any pecuniary interests, and who are desirous only of arriving at the size and shape of frame best adapted to the successful production of surplus honey, there can be no danger in this direction; and while I believe it has been pretty fully demonstrated that the size of brood-chamber can be governed only by the location, time, and duration of the honey-flow, I am not so ready to admit that location has any bearing on this question of the shape of said brood-chamber.

I believe it is a fact generally acknowledged, that, other things being equal, a swarm of bees will store as much honey in one hive as in any other; but it is not so readily conceded that all hives are equally well adapted to the successful storage of *surplus* honey in the very best shape for market; and more especially is this true in the production of comb honey.

Friend Dayton struck the key-note of the whole business on page 550, July 15, when he said the measurements of the Gallup hive were found exceedingly unsuitable for the adoption of the standard section. I was compelled to

adopt the Langstroth measurements. Aye, there's the rub; and so long as the $4\frac{1}{4}$ section continues to be the standard, just so long will the shape of the Langstroth form of hive make it so much better adapted to the successful use of this section than any square or deep frame hive. It will require better arguments than have yet been produced to induce very many practical honey-producers to change from the L. to any square-frame hive. On the contrary, I am firmly of the opinion that the tendency of the times is in the opposite direction. I believe about all the advocates of the square hive claim is that they winter better and build up faster in the spring. While this is doubtless true when run on the let-alone principle, as many so-called bee-keepers manage their bees, yet it is a demonstrated fact that, with proper care and management, the L. hive will generally have its working force ready for the harvest when it comes, and that is all that is necessary. Too large a swarm in early spring is not desirable, and never does as well when the harvest comes.

I believe the majority of bee-keepers, like friend Dayton, have found out that the L. hive form is best adapted to the use of the standard section; yet is there not room for more improvement in the same direction? or, in other words, is there not some system of management that will preserve the form of the L. hive for surplus, and yet give us more perfect control of our bees, and thereby enable us to secure something of a crop of surplus, even in poor seasons which seem to be so common with most of us? Has not this need been supplied by the advent of the horizontally divisible brood-chamber hive?

While there are locations so good that almost any kind of hive will give a fair crop of surplus, yet there are very many locations so poor that it is only by the very best system of management, and strictest attention to every detail connected with the business, that any thing like a decent crop of honey can be secured. In such a location as this it has been my lot to be placed as a honey-producer, and for several years as a specialist, depending on the production of honey for food and clothing for wife and the little ones, and therefore I must have a hive and system that will give me perfect control of my bees at all times—one that will give me all the white honey where I want it, and that is in the sections. I have never invented a hive, but have carefully tested every hive of any note that has come before the public for the past twenty years; and the divisible-brood-chamber hive is the only one that has ever given me perfect control of my bees. With this hive and clipped queens I am not only a bee-keeper, but am master of the situation, and can say to my bees, "Thus far shalt thou go, and no farther."

I will not take the space to explain the sys-

tem of management necessary to the successful operation of this hive, as it has been given to the public by Mr. Heddon and others, and is familiar to all careful readers of GLEANINGS. Of course, friend McIntyre or any one else would make a failure in trying to use this system with a frame 7 inches deep and 10 frames to the hive at that. The frame I use is $4\frac{1}{4} \times 17$ inches inside; and any brood-case can be used as a wide-frame super by simply providing the frames. With this depth of frame and proper bee-spaces between the cases $\frac{1}{4}$ inch, and top and bottom bars $\frac{1}{8}$ inch, I have no trouble about the queens passing from one section to the other; and my bees will remove the honey from the lower case as soon as they are interchanged, every time.

Friend Root, you say that Dr. Miller, after experimenting with the shallow extracting-chambers, arrived at the same conclusions as friends McIntyre and Holley. I notice by your catalog the top-bars of your shallow frames are $1\frac{1}{2}$ inches wide. Perhaps this had something to do with the doctor's failure with them.

I am not in any way interested in booming any hive or system, but have only tried to give to the readers of GLEANINGS the result of my experience along the line of hives; and if it will help some brother bee-keeper to increase his yields of surplus, and by so doing be the better able to provide for those dependent upon him for support, I shall be amply rewarded, and shall be only too happy to give something in return for the many helpful instructions I have received through the pages of GLEANINGS. It is useless to add that the honor of bringing this system to public notice belongs to James Heddon; and whether his patent is valid or not, I believe his rights will be respected by all honest bee-keepers.

Wakeman, O., July 20.

[The columns of GLEANINGS are open to fair and impartial testimony of this kind. The top-bars that Dr. Miller used were, I think, $1\frac{1}{8}$ in. wide. Possibly this may account for the fact that queens did not breed properly in the two sections of the hive at the same time. What he had was extracting-supers and not brood-chambers.]

Since this came to hand we have received the following from O. R. Coe, quite an extensive bee-keeper in the Catskill Mountains.—Ed.]

□ I have over 700 half-story hives, and do not propose to make or use any other style of hive than the divisible brood-chamber, but have not time now to tell why I like it better than any other hive.

Honey is a total failure up to this time. Bees are in a starving condition except as I feed them where there was not honey left over from wintering.

O. R. COE.

Windham, N. Y.

[Here is an article equally fair and unprejudiced, on the "other side."]

THE DOUBLE BROOD-CHAMBER A FAILURE.

COSTS MUCH MORE THAN THE SINGLE BROOD-NEST; WINTERS NO BETTER; THE REVERSING AND SHAKE-OUT FUNCTIONS.

By B. Taylor.

Dr. Miller, in *Stray Straws*, says:

B. Taylor, after inventing and using for many years the sectional brood-chamber, takes away one's breath by saying in *Review* that he prefers the single brood-chamber.

Now, doctor, if you should fail to recover your breath I shall not consider myself responsible for support of the widow, for you had no real excuse for losing your breath; for, while I have written approvingly of the divisible shallow brood-chamber as being very handy for doing many things that I practice in raising comb honey, such as contracting the brood-nest to hive prime swarms in, yet I have in none of my writings disparaged the larger full-brood chambers. At length I came to the time, as I have told in the June *Review*, when I had to choose between them; and I had to decide in favor of the larger full brood-chambers, upon the ground of utility alone, and for the following reasons. 1. The double brood-chambers cost more to make. I have always sold a single brood-chamber, such as I use, for \$1.25, and could not sell two sections of the shallow hive for any thing like that sum, for each section costs nearly as much to make as the larger full hive. It is true, there is a little less material in each section of the shallow hives; but in the two sections there is at least 40 per cent more material, and very nearly double the work. There are 20 instead of 10 frames; two hive-bodies instead of one, each costing in work and material nearly as much as a single full hive. Now, if I could have secured more honey, or with less work with the double brood-chambers, the increased cost of them could have been borne without loss; but after thirty years' trial I was *compelled* to know I could not. I at length became aware that I had over-estimated the double brood-chambers. Especially did this become manifest in the last few years of poor honey crops, when the struggle for bread and butter became greater. I have no apology to make for over-estimating the double brood-chambers. It was my baby, and I wanted it to be the handsomest and best baby in the whole world; but all parents know that our babies at length grow up to mature age, and their faults manifest themselves. We still love them; but if we are *wise* we see their weak points, and can not *love* their faults.

My double-brood-chamber baby grew up with more faults than my less showy, full-brood-chamber baby. I once believed the double brood-chamber wintered bees better than the full hive; but in the last few poor seasons for honey I have lost heavily in bees each spring, and the colonies in the double

hives fared as badly as those in other hives. I now *know* that it is the bees themselves that make wintering (when proper rules are observed) safe. I have long observed that some seasons bees wintered well in all styles of hives, and with seemingly careless management. I now believe I know the cause. Now, do not understand me as denying that the double brood-chamber has some good points; but its bad features overcome them. I have tested the "shake-out" function, the reversible function, about which much has been claimed; and I *know* that, for practical work, they are *arrant humbugs*.

In any hive we sometimes need to handle single frames, for various reasons, which I need not mention, as every bee-keeper understands them; and for many years, when this work had to be done in the double hives, I began the work with uncomfortable feelings. With the wire-end-frame handy hive all this work is begun with a kind of joyful feeling, for you can get into every part of the brood-chamber so easily, without any poking or prying, and with no tools but our unaided hands, that the work becomes a pastime indeed.

Readers of my writings will have noticed that I practice the same system with these hives that I do with the double brood-chamber. I still hive prime swarms on six to eight hundred inches of comb space. I contract by using two to four dummies made exactly the size and shape of the brood-combs; and in my hive I can do this work of contracting and enlarging twice as easily as with any other hive in existence. In the fall we use these hives double, but not as double brood-chambers. A queen-excluding honey-board is used between, for we have found that more bees can be raised on 1000 inches of comb, and have them ready for field work when clover blooms, than in a larger hive.

I have now fully answered the question of why I finally decided in favor of a single brood-chamber, and have done it in no hostile spirit toward any man or his interests, but have written every line with a sincere desire to benefit poor bee-keepers who are struggling to meet life's demands.

Forestville, Minn., July 16.

[I do not know that I have any comment to make, other than that I have not yet succeeded in making the shake-out feature work, nor have I seen any one do it with success.—Ed.]

Our Crimson-Clover Symposium.

HOW TO RAISE IT AND HARVEST IT.

By Arthur T. Goldsborough.

As you ask for points on crimson clover, I write to say that I was one of the first men in the country to grow it. For three or four years people have driven by to see "Mr. Goldsbo-

rough's clover-fields," as the *Star* puts it. I do not believe it does to allow one's soil to lie all winter uncovered; so, consequently, stubbles of all kinds are planted to this clover—some to cut and cure, some for turning down, and some for seed. I always save my own seed in the haulm, having no thrasher or huller. If the cutting is done after the heads show no red, it quickly dries and is put into small cocks. A canvas is then spread, and in a very short time the seed (haulms) are flayed out. Unlike other grains, the slightest touch makes the haulms loosen. These are put into bags, and sown down the wind any time you wish. I sow it from Aug. 1 to Oct. 1, and rarely cover it, as it comes up easily after a rain. After digging early potatoes I rake off the vines with a harrow, and then sow clover seed, and do not cover. When sowing turnip seed I mix them with crimson-clover seed. For several years I sowed kale and clover together; but this is not wise, because in the spring the clover hides the kale too much.

I am now sowing clover among my tomato-plants, egg-plants, corn, beans, and melon-patch, and expect the first rain to start the seed. I am very much pleased with my last year's experiment with crimson clover, in connection with red clover and timothy. About the first of September I sowed crimson clover, red clover, and timothy at the same time, on some sugar-corn stubble. After taking off a splendid crop of crimson-clover hay, I forgot that other seeds had been sown with it, and was surprised to see a showy second growth putting forth about a fortnight later. The red clover has given me a good second crop, and will be allowed to remain over. Its habit of growth is much more beautiful than red clover, as it is taller, and stands up straighter, and the heads stand together more like wheat and timothy. It is so pleasing to the eye that I have a "woodman, spare that tree" feeling, and dislike to turn it down before blooming. Indeed, I am quite satisfied with its stubble, its roots, and its shade—that mysterious agent which furnishes the rich microbes of the soil to overcome the poor ones. A little strip of my field corn had a small piece of clover-stubble turned down about May 20, and any one could tell where the clover strip began and ended, almost on a dark night. If you do not sow it before last "plowing" of corn (good farmers don't murder their corn with a plow if they own a cultivator), get on a horse, ride down the rows, and sow it at any time before Sept. 1st. It won't need any covering unless we have a drouth. Besides, the expense of the seed won't break you in case of failure.

I rarely sow more than 5 pounds per acre. Another good way is to sow it on corn stubble, and spread fresh manure over it. If the horses have been fed on clover or timothy you will catch a good stand of these next spring.

I have not tried it with buckwheat, because the latter seems always to exhaust my lands. As a bee crop, nothing equals it. I have fifty colonies of bees, and they roar on it all the time. It is useless to sow in the spring. Two years ago I picked out some white heads, and now have this Italian clover in two colors.

In this day of low prices and close competition no farmer or horticulturist can afford to go without it. How many ignorant men in our land will purchase, this fall, worthless fertilizers to the extent of from about five to ten dollars an acre, when fifty cents' worth of clover seed would insure results five or ten times as great! In the rural districts of Maryland most of the mortgages are held by guano merchants; and if the agricultural papers did not receive their "ads" they would tell the farmers the truth about fertilizers, just as our experiment stations are doing. Try crimson clover, and see how much manure and fertilizer you need.

Wesley Heights, Washington, D. C.

CRIMSON CLOVER ALIVE WITH BEES.

STOCK PREFER IT TO THE RED.

By W. W. Kulp.

I had a little correspondence with Dr. Miller, and I mentioned that we raised six acres of crimson clover. He wished I would write about it to some bee-journal.

My father owns a dairy-farm four miles south of where we live. On it was wheat-stubble in which the grass failed to catch. It was plowed during July, and harrowed; then in September, the first half, it was harrowed and rolled until it was in first-class condition—fine, and packed down. Remember that small seeds, especially if sown during warm weather, require fine earth, and it must be packed down, so moisture can continually come up from below. The crimson-clover seed was then sown with a seeder, and covered with a Breed weed-er. It came up nicely; and where it was very thick on the ground it grew much the best; but there was a good stand all over the field. It is river-bottom land, and in the adjoining field was a large colony, or many colonies, of grasshoppers. They moved on the clover, and ate off about 20 or more feet all along one side.

It was as green as spring grass all winter; but during cold spells in March it froze down, but sprang up quickly in April; and by May 25 it was a sea of crimson, beautiful to look upon.

Now for the bee part of it. I have an apiary of 40 colonies, now 55. About this time white clover began to bloom, and the bees began to store honey nicely. When fully out in bloom, and a few days more, my father went to cut about four acres of it. He found the whole field alive with bees—so many that one horse refused at first to go along it in the machine.

Now, no bees of any account are kept near it. After it was cut I found the flow stopped at my apiary, four miles away, and did not resume until after the middle of June, when red clover came out. White was very plentiful, but no honey. Now, I am not sure that the bees obtained the flow from the crimson clover, but there is no flow here between fruit and clover—no raspberries or wild flowers. We are not far north of Philadelphia, and the land is all farmed.

I took a bunch of dry hay of the crimson clover, and put it in the horse-rack when he was eating fresh-cut undried red clover and timothy. He left that and ate the dry crimson.

I raise Belgian hares, and I fed it to them green, and expect to feed to them one and a half tons dry before next May. They eat it every bit, and grow like weeds; but they eat ragweeds with a relish too.

I have sown one and a half acres of buckwheat and crimson clover with it; but we had only a few sprinkles of rain for a month, and the clover has not started. I intend to make it a regular rotation—buckwheat and clover right along, and expect to make the field rich. You see I read Terry. The Lord bless him and all the big and little Roots, including J. T. C.

Pottstown, Pa.

CRIMSON CLOVER IN DELAWARE.

HOW IT IMPROVES THE SOIL; NO PLANT EQUALS IT AS A HONEY-PLANT; HONEY EXCELLENT.

By T. F. Cooke.

Crimson clover is probably more extensively and successfully grown in this locality (Delaware) than in any other in the U. S. at present. We consider it a most valuable plant, for on it greatly depends the production of fertility with which to grow the luscious fruits and fine vegetables for which this peninsula is noted. Its growing has been widely extended here during the past few years, and almost every farmer and fruit-grower has tried it, and knows its uses and value. Years before it was popular, the plant was known, tried, and pronounced a failure, probably because it did not show the marked characteristics of red clover, then almost the only member of the clover family in use here. Since then, slowly at first, and with a rush later, it was adopted, and its wonderful adaptability to our style of farming has become apparent. We were told that, beneath the working soil, the ground was full of plant-food; but a trial of deep plowing to bring it up invariably resulted in disaster. This plant, with its mass of roots in the surface soil, sends deep into the earth a number of roots after water and food, and from the air it draws nitrogen. More or less of these added elements of fertility are left in the soil, whether the crop is removed or plowed under; and the results seen in the

growth of succeeding crops are wonderful. That more fertility is gained by allowing the crop to fully mature, and be removed, than to plow under while green, is believed here generally, except, perhaps, where the land is intended for late potatoes, or is lacking in vegetable matter. On such land, plowing under the green crop when in full bloom is recommended, provided always that the quick improvement of the soil is of more value than the crop which might be removed and used for soiling, ensilage, cured hay, or seed production. The straw and chaff, after removal of seed, equals in value many of our cultivated grasses in feeding value.

The value of crimson clover begins as soon as the plants appear above ground, for then they begin to act as a shade and mulch, and to use and conserve fertility which would otherwise have been leached or blown away. They soon begin to draw nitrogen, for the nodules on the roots are found in great plenty, even in early December, or before. From that on until the busy bee extracts its store of sweets from the blossoms, the roots are lengthening out and searching for food three, four, and more feet under ground. We have been told that crimson clover has no tap-roots, and therefore can not reach down after phosphoric acid and potash; also that its life is too short to accomplish the work which red clover does. The facts are, that it does do it; and it has been proved by chemical analysis. We consider the root arrangement of crimson clover more advantageous, because the mass of roots are in the surface soil, where they are most needed. It can be used with or after almost every crop. None should be used on strawberries; for these, use it the year before the patch is set. It should be sown every year in blackberries and raspberries. It will stand the winter here if sown after sweet potatoes are dug. No plant we have here equals crimson clover as a honey-plant. It produces every year, and all the time while in bloom, some three or four weeks, according to the nature of the soil and climatic conditions. The growth of the blossom seems well adapted for honey-production, as it grows in length, and the bees work on the new growth until the blossom is full grown, two or three inches in length, in many instances. The principal trouble here in getting the honey seems to be in having the bees good and strong, and ready. It comes early; and if the bees are ready the sections fill very rapidly, and the honey is excellent.

This season white clover did not produce any honey here; and during crimson-clover bloom the weather was very unfavorable for bees to work; so our honey crop is a short one.

I can furnish you no photo of the plant; but it is a beautiful sight to see our broad level fields of it, when in full bloom. It is quite a curiosity to those who travel through here, and

are not acquainted with it. A few seeds sown in a box or pot, and cared for at almost any season, makes a pretty ornament.

Dover, Delaware, Aug. 5.

ALFALFA AND CRIMSON CLOVER.

A SUCCESS IN NORTHERN ILLINOIS; CRIMSON CLOVER STANDS WINTER FREEZINGS AS WELL AS OTHER CLOVERS EXCEPT SWEET AND ALSIKE; AS GOOD A HONEY-PLANT AS ALSIKE.

By M. M. Baldrige.

I mail you to-day a small bunch of alfalfa, grown in this neighborhood, and taken from the crop to-day. If you will measure the plants I think you will find them to be from two feet to nearly three feet in length. These plants are from the second crop grown this season. The first crop was cut for hay about five weeks ago; since which time we have had and are still having a pretty severe drouth. The plants are now, as you will see, in full bloom, and some of the blossoms have gone to seed. I find more or less bees at work on the bloom, but by no means as many as upon the same-sized plat of sweet clover. This sample of alfalfa is taken from a plat planted at least ten years ago. The plat to-day is many times larger than when first planted. The plants each year have been permitted to mature one crop of seed, and to remain upon the ground where grown. This is not the proper way to do; still, the size of the plat has thereby been extended in every direction.

From what I have seen here for at least ten years, I am satisfied that alfalfa is as hardy and permanent in Northern Illinois as any known plant that grows here. On proper soil, alfalfa will do as well here as a farm crop as it will in Colorado, Arizona, Utah, or the Pacific States; the only difference being, that I can see, that we can not get as many crops in a season; still, we can secure three crops of hay or one crop of hay and one of seed. Any soil here that has a loose subsoil, as gravel, sand, or loam, will do for alfalfa, and there are thousands of acres of just such land in almost every county in Northern Illinois.

CRIMSON CLOVER.

I sowed a small plat to crimson clover Aug. 20, 1894. The ground was broken up and the seed raked in. The seed came up quickly, and the plants were about eight inches tall when winter set in. During the entire winter the plants remained green in color. The spring was exceedingly bad for the clover family; but the crimson stood the alternate freezings and thawings fully as well as any other clover except alsike and sweet. Some of the crimson plants died; still there were plenty left for a good stand. The plants grew to about one foot in height, and when in bloom the blossoms were very handsome, and much admired by all

who saw them. The plants were in bloom nearly a month; but I regret to state that I neglected to keep the date when the plants began and when they ceased to bloom. I permitted the blossoms to mature seed, which they did about the middle of June. It was my purpose to gather the seed, and with it seed down a larger plat; but a heavy storm of rain came on near the middle of July, and shattered the seed off. I then concluded to break up this plat and let the seed make another stand. On examination I found the seed had already germinated, and that it was unnecessary to disturb the soil. To-day the plants are about one inch high; but unless we get rain soon they may not survive much longer.

While this clover was in bloom the bees were very busy upon it. From what I have seen, I believe crimson clover is about as good a plant for honey as alsike, and that it will pay honey-producers to encourage their neighbors, who are farmers, to try a few acres of it. If they should succeed in growing a crop of hay or seed, in 1896, they will then need no further encouragement. It is my experience that farmers, as a class, are exceedingly slow in regard to trying new plants, and hence they need more or less encouragement; and yet this should surprise no one, for it is a well-known fact that not one farmer in 25, possibly 50, subscribes for or reads an agricultural periodical.

St. Charles, Ills., Aug. 5.

[Well done, friends. I hardly expected to get such favorable reports from localities so widely scattered. I am very glad indeed to hear friend Goldsborough come right out square about this matter of purchasing fertilizers indiscriminately, especially when so many of our experiment stations keep insisting that it does not pay; and I am exceedingly glad to find its value emphasized as a clover-plant. Friend Kulp's experiment of having the clover cut right in bloom, and a corresponding cessation of the honey-flow, would seem to be very conclusive. Surely it will not be a difficult matter to plant an apiary now, or very soon, within a range of a hundred acres of crimson clover. We all know what success it has met with in Delaware and vicinity. But our good friend Baldrige tells us that, away out in Illinois, it promises to succeed at least tolerably if it does not generally. And I am glad to hear such a report from alfalfa. Only yesterday a man called and asked me to go over to Chatham, ten miles away. He said there is a little patch of alfalfa over there that has given three good cuttings already this season. It is now Aug. 13. The seed was bought at our store. The soil around Chatham is heavy clay.

In regard to sowing crimson clover during the latter part of August, I am afraid it will not be a very safe experiment in our locality, judging from last season. We should remember, however, that last winter—perhaps I should say, rather, last March and April—was the most severe on any kind of vegetation wintered over outdoors, of any season for years past; and may be that, with an average winter, crimson clover, with proper attention, will get through all right, even when sown in August and September. We need a lot of facts from experience, right along in this line. Who can furnish them?—A. I. R.]



MARKETING HONEY.

Question.—Having some comb honey off the hives, and still more to take off, I wish to know how best to market it as to style, and where.

Answer.—This is a question that always arises in a bee-keeper's mind upon producing more honey than is needed to supply the wants of the family. This is also an important question; for a person may succeed in producing a good article of honey, and so put it up and force it upon the market that it will not bring the producer as much as a third or fourth class article would an apiarist who has an eye to this important item, "marketing honey." A good price for honey depends much upon the state in which it reaches market. Many will take their honey to market in bulk, piling the sections into a spring wagon in a haphazard way, and driving to the nearest town or city, offering it for sale. The grocer looks at it and soliloquizes: "This honey is in poor shape for me to sell; and if I put it in attractive shape it will cost me a cent a pound at least; also, this honey shows that the producer does not know the value of his production or he would have put it up in marketable shape; therefore, if I buy, it will be at a less figure than I would otherwise pay." So he offers three or four cents a pound less than he would expect to pay for the same quality of honey nicely crated and offered for sale by a person knowing what such honey was worth in the different markets.

In passing through the city of Syracuse, N. Y., a city of about 90,000 inhabitants at that time, I stepped into several places where I saw honey, and upon inquiry found that honey which was brought in without crating was bought for from 9 to 11 cents per pound, and sold at 15 to 17, while they paid from 13 to 15 cents for honey nicely crated of the same quality. Thus it will be seen that it pays largely to nicely crate our product: and if I had but 25 pounds of honey for sale I would crate it by all means, not only because it would pay *me*, but also because it would help other bee-keepers, and establish a more uniform price for honey throughout the country.

Well, after crating our honey and getting it in the most attractive shape possible, what shall we do with it? Much depends upon the amount of honey we have and upon our surroundings. If not more than from 100 to 500 pounds are raised, as a rule it can be disposed of in the nearest small towns to the best advantage. However, before we sell our product we should know what it is worth to us if we send it to some of the large cities. To ascertain this we should take some paper which

gives correct market reports, and I know of none which are ahead of GLEANINGS in this respect. Having such correct report: figure the expense of freight and commission out, and we have what it is worth at our nearest railroad station. If every one having honey to sell would adopt this plan, as well as crate it nicely, and then hold on to their product till they could get what it is really worth, we should soon find our smaller towns paying a uniform price, and we be taking a long stride toward making honey as staple an article of merchandise as it can ever become.

Now allow me to present a few thoughts regarding selling outright, concentrating our consignments, and also about scattering our product among a number of commission men. After arriving at the real value of my crop, as nearly as I can by the line of figuring spoken of above, I have always placed the selling price (at my nearest railroad station) at one cent per pound less than I thought it would bring when sold on commission. My reasons for so doing have been that, in case of selling outright, I have the money at my disposal, and can often invest it so as to make more than the penny a pound would amount to before a return was made from the commission man, because selling on commission sometimes proves to be a slow process of disposing of our product. In selling, I always demand cash at the railroad, when sent to a person I do not know; and if I spoke my mind freely I should say do so *always*, as right wrongs no man. I much prefer to wait a few months on the commission men to waiting a few years, or never getting any pay, of a dishonest buyer.

Some years ago I sold my crop to a dealer in one of our large cities, and was foolish enough to let it go with the promise to pay upon its arrival; but "arrival" proved to mean five years. Thus I learned a lesson I have tried to profit by.

But shall we concentrate or cooperate in marketing our product, sending all honey going to one city to one commission house, as was recommended some years ago by some? My experience says no. Some years ago I shipped my whole crop, of about 9000 pounds, to such a selected commission dealer in New York. A little of the consignment was sold in October and November at full market quotations, and enough more during the winter, at a less figure, to make one-third of the shipment, while the remaining two-thirds was closed out in May at a price far below the cost of production. Had I and the hundreds of others who shipped honey that season to this party scattered it among twenty different parties and in different cities, nearly, if not all of it, would have been sold at the prices obtained in October and November. Thus a great gain would have been made to the producer, as it costs no more to ship to ten commission men than it does to one, unless we

except the extra accounts we have to keep. Since the above experience I have adopted the plan of shipping to as many different parties as the numbers 300 to 500 was contained in my production, according to the size of my crop. Some seem to think purchasers will get "scared" over seeing honey at every commission merchant's window, so hold off about buying, but I find this is fallacious. As well talk of a butter panic being caused in the same way; for all our commission men who handle country produce handle butter, yet the price of butter keeps steady, and people buy every day in spite of butter at every store. Since I adopted the plan of scattering my crop among several commission men in several cities, the prices obtained have been very satisfactory; returns in most cases have been made quickly, and several lots sold from one to two cents per pound above the market quotations.

To sum all up, I would say, put honey up in the most attractive shape possible, and sell for cash if you can obtain as much into a cent a pound as you think it will bring you when shipped on commission. If you can not thus sell it, ship on commission to reliable parties, sending 500 pounds and under to each party.



SCORCHED WAX; CAN IT BE USED AGAIN?

I have a cake of scorched wax, about 9 lbs., which I made about seven years ago. Is there any way I could take the scorched scent out of it so as to make up in brood foundation? The A B C, 1887 edition, doesn't seem to have any thing to say about the subject.

Rock Rift, N. Y. JOHN S. CALLBREATH.

[Scorched wax, like scorched sugar or molasses, is practically ruined. You could mix the stuff in with a lot more of good wax, but it is doubtful whether it would be better than so much sand. The only thing I can suggest would be to put it into a solar wax-extractor. That which has not been entirely spoiled will separate, I think, under the action of the sun, and run down as fairly good wax. As all our wax is heated by hot water, itself heated by steam, we don't have scorched wax.—ED.]

IS IT A FACT THAT BEES SHOW A PREFERENCE FOR NEW OR OLD COMBS?

Dr. C. C. Miller:—I can answer two of your questions in Stray Straws in GLEANINGS, June 15. 1. A queen will lay in old combs every time before she will in new, as I have tried it often. Put old and new combs side by side, and the old ones will be filled with eggs first. 2. Do ducks eat bees? Yes, they have done it. One of my neighbors had ducks and bees. The bees watered at his trough, and the ducks caught many, for I saw them in the act.

Now, Dr. M., I will ask you a question: How long can you keep eggs out of the hive and have them hatch in another? One time I took a comb from a black colony containing eggs, and kept them out a little over four days, and then I gave the comb to a colony of Cyprians, and they reared black bees. C. K. DECKER.

Hanford, Cal., July 1.

Dr. Miller:—My observation leads me to believe that the queen prefers old combs to lay in, and that the bees likewise prefer the old combs for brood and storage. Combs turn dark by usage, as I think chiefly by fine varnish applied by the bees. All the interior and woodwork of the hive is also varnished in time.

Hopkinsville, Ky., June 26. D. F. SAVAGE.

[Dr. Miller replies:]

I hardly know how to account for the difference of opinion regarding the preference of bees for old or new combs. Some say bees prefer new combs both for brood-rearing and for storing honey, and yet it seems to me that in the many cases I have noticed there has been such a decided preference shown for the old comb that it would seem safe to consider it the universal rule. Will any one who feels sure that bees prefer new combs tell us what led him to this conclusion?

The duck question was raised in the *British Bee Journal*; and while there was testimony that in some cases ducks left bees unmolested, there was also very direct evidence that a duck would not scruple to lunch on bees.

As to the length of time eggs can be kept without spoiling, I have no very great knowledge. In the few trials that I made, I think eggs were destroyed after being kept out of the hive three days. But that doesn't prove that they might not be all right in other cases when kept out the same time or longer. It might be a step in advance if we could learn to keep worker eggs, for such eggs might then be sent by mail for the sake of getting new stock.

[Queens, I feel sure, show a preference for comb partly drawn out from the foundation; but I think I have noticed that, when it is fully drawn out, they will select the old combs. This seems to be more apparent toward the close of the season, when it is evident that cool nights will come on soon. A wasp-nest containing eggs and larvae was laid on my table two weeks ago. Some of the larvae were uncapped, and died in three days; but on uncapping the others at the end of ten days they made a respectful bow, and seemed very vigorous. To-day, Aug. 5, two days later, they are all dead. Probably bees are not so tough.—ED.]

IS IT A CASE OF UNUSUAL BALLING OF THE QUEEN?

I have been handling my bees on the clipped-queen plan for ten years past, but met with an experience to-day that surprised me. I introduced an Italian queen to a colony about five weeks ago; decapitated the old queen, because

her bees would sting as bad as hornets. To-day I took out the queen and clipped her; placed her on a leaf on the top of frames, and, as she went down, the bees got after her. I lifted out two or three frames at once, and found her balled on the bottom-board. I smoked the bees off, and she was stung to death. Is that unusual?

GEO. W. MARTIN.

Saltsburg, Pa., July 23.

[The case is not an uncommon one with cross bees, though usually there is time enough allowed to get the queen out of the ball before she is stung.—Ed.]



N. A. M., N. H.—Snow piled against the hives in winter is no detriment of itself, and affords some protection. The only trouble arises when it thaws and clogs up the entrance with ice. This trouble can largely be avoided by giving the hives a little slant forward in order to run the water from the entrance.

I. D., Mich.—The reason why bees fill in small slabs of comb between the frames is due, many times, to improper spacing, and to combs that are irregular. If combs are flat as a board, and spaced $1\frac{3}{8}$ from center to center, and if the top-bars are $1\frac{1}{8}$ inches wide, there will be but very little trouble. The building of similar pieces of comb in the sections can be avoided by the use of separators in connection with full sheets of foundation. In most cases, separators with starters are effective.

F. L. W., Ia.—We have not tried using chaff hives single-walled at the sides, and packed at the ends only; but reports from those who did try them were rather unfavorable, because the division-boards, even when 2 inches thick, do not seem to take the place of the thick double walls of the hives. Most colonies in our locality, even in chaff hives, are contracted down to leave a chaff division-board at one or both sides; and, of course, in the case of the smaller colonies, this gives additional protection; and, when large enough to fill the whole brood-nest, the division-boards are not needed.

B. F. M., Texas.—Bees, as a general rule, kill off drones immediately after the honey-flow. This is one of the economies of the hive; for the bees can not afford to support drones when swarming is over, and there is nothing before them but to save up their stores and go through winter. Useless consumers and non-producers must be killed off and got rid of. Of course, in queen-rearing you can prevent the loss of the drones by feeding the colony a little every day; and if you desire increase, divide, and feed each divided half a little feed to keep them going on in brood-rearing.

W. H. S., Va.—If your bees are clustering on the front of the hives, and refuse to work in the supers; and if, too, other colonies are gathering honey, the probabilities are they are preparing to swarm; or if the hive is improperly ventilated, and exposed to the hot sun during the middle of the day, give them plenty of super room, and, if necessary, raise the cover up a little and then drive them in with smoke. Of course, it is very essential that they have shade. If you can not give it to them any other way, use what is called a shade board—that is, two or three boards cleated at the ends so as to make a projecting top that will extend six or eight inches beyond the sides and ends of the hive. Of course, said shade-board should be elevated above the hive-cover an inch or so, to permit of a free circulation of air under it. In our catalog, page 4, is illustrated and described what we call the ventilated gable cover, combining to a great extent the ordinary cover and shade-board together.



Basswood is done for this season, and a good honey-flow. We have had goldenrod, and other fall flowers promise well in sections where the low lands are.

A. G. ACKLIN.

St. Paul, Minn., July 17.

My best colony stored 119 lbs. from fruit-bloom and scarlet clover. This season white clover is almost a complete failure. You can't go wrong in sowing it for honey. It will come as near paying expense of cultivation for its nectar as any plant with which I am acquainted.

J. COLBY SMITH.

Willow Grove, Del., Aug. 5.

We are having the largest honey-flow I have ever seen. My 50 colonies of bees keep me busy waiting on them, while they are just rolling in it. But, strange to say, my neighbors' bees are doing almost nothing. I have the leather-colored Italians, while they have hybrids and golden Italians.

EDW. SMITH.

Carpenter, Ill., July 22.



BITTER WITH THE SWEET.

Bees are doing very little; no basswood whatever. Last year at this time I had 1500 lbs. of nice honey, and now not even 50 lbs.; but we have to take the bitter with the sweet.

STEPHEN ROESE.

Maiden Rock, Wis., July 22.



I WOULD call special attention to a good article by Doolittle in this issue, on marketing honey.

I WOULD also call attention to the valuable articles on crimson clover (see page 629). A few more have come in, but they were too late for this number, but will be inserted in our next, and perhaps in subsequent issues also. Any thing that looks toward increasing our annual honey crop by way of artificial pasturage in these times, that will supply our farm stock with a valuable forage, should be hailed with delight. Crimson clover is now one of our hopes, and should be encouraged by all means possible, if the testimony of reliable witnesses so far received is of any account.

THE TORONTO CONVENTION.

REMEMBER the date of the next meeting of the N. A. B. K. A., Sept. 4, 5, and 6, at Toronto. Reduced railway fare and hotel rates have been secured, and every thing so far looks favorable to a big and rousing meeting. Don't forget to ask for certificates for the one-third return fare, when purchasing tickets, whether you expect to use them or not on your return. The point is here: In order to secure reduced rates a certain number of certificates must be presented. If you do not secure one it may bar out all the rest from the one-third fare return, who have to travel ten times as far. This has already happened once or twice before, simply because a few, having only a short distance to travel, "did not want to bother with it."

The following is the program, from Secretary Hutchinson, so far as it is yet prepared:

The Bee-keepers' Union; its Past, Present, and Future. T. G. Newman, Chicago, Ill.

Amalgamation of the North American Bee-keepers' Association and the Bee-keepers' Union. Doctor C. C. Miller, Marengo, Ill.

Address of Welcome, etc. Hon. John Dryden, Minister of Agriculture, Toronto, Can.

A short address, Jas. Mills, M. A., L.L. D., President Ontario Agricultural College, Guelph, Canada.

Introducing Queens. S. T. Pettit, Belmont, Ont.

Bee-paralysis: What we know and should do about it. E. R. Root, Medina, Ohio.

Mistakes of Bee-papers and Bee-journals. Allen Pringle, Selby, Ont.

How Bee-keepers might receive more benefit from the Experiment Station. R. L. Taylor, Lapeer, Mich.

Who shall winter bees out of doors, who in the cellar? F. A. Gemmell, Stratford, Ont.

What is indicated by color in Italian bees? J. P. H. Brown, Augusta, Georgia.

The proper size of a Brood-nest, and how it shall be decided. Jas. Heddon, Dowagiac, Mich.

The surest and best way of raising a crop of Comb Honey. B. Taylor, Forestville, Minn.

Some things of interest to Bee-keepers. G. M. Doolittle, Borodino, N. Y.

Legislation for Bee-keepers. R. McKnight, Owen Sound, Ont.

How to Feed Bees properly. H. R. Boardman, East Townsend, Ohio.

BURR-COMBS AGAIN; HONEY-BOARDS VS. THICK-TOP BROOD-FRAMES.

IN the last *Review* Mr. Hutchinson has an article entitled "Dispensing with Honey-boards." In speaking of brace and burr combs he says the remedy has been to use thick top-bars; that there is little difficulty in making the bars, but that there is difficulty in securing accurate spacing. His reason for so thinking is that bee-journals are still describing methods for that purpose. I can't see why this should prove that accurate spacing is impossible. If Bro. Hutchinson could work with us in our yard for a summer or two, with Hoffman frames, I think he would agree with me that there is no trouble in that line; neither is there any trouble from a few burr-combs. He says, "others say" that burr-combs are *lessened* only by the using of the thick bars. My own experience with such bars for five years, and almost constant observation, not only in our own yards, but in others, satisfies me perfectly that it is only in rare instances that they are built over the frames I have mentioned; and so rare have they been that almost anybody would say, who has had experience, there is no trouble worth speaking of. Mr. Hutchinson thinks it is a mistake to throw aside honey-boards, inasmuch as their cost is slight, and that they should not have been thrown aside, because "others say" there is trouble with burr-combs over thick top-bars. As to the matter of cost, he figures that at one cent a year for each board. This does not figure any thing either way, because it would be offset by the cost of the thick top-bars, and that should be thrown out of the account. The only objection he can think of with the honey-board (aside from the cost) is that it must be pried off when the brood-nest is open. And right you are, Bro. H.; but it is a very *big* objection, and especially so during the robbing season, when robbers are ready to pounce upon the hive, and chunks of honey are torn loose, and the drippings are smeared over the combs. The building of such is a waste of energy and a loss of wax and time on the part of the bees that should have been bestowed on the sections.

Mr. Hutchinson asks, again: "What does the practical honey-producer want to be opening his brood-nest for?" . . . "It is only in special cases that such treatment becomes necessary. A good bee-keeper can nearly always tell from outside appearances whether all is well inside of the hive." I will grant this is true to a certain extent, and once or twice I have written upon this phase of diagnosis; but too much a dependence upon this is too costly. At the risk of back-tracking a little I must confess that I can get a much more satisfactory idea of the brood-nest — one that may save dollars — after

seeing both surfaces of *one* brood-frame from the center of the hive. With the thick-top-bar sort of Hoffman self-spacing, it is a simple matter to get at the one frame. In the height of the honey season, when we used to use slat honey-boards, the outside indications, we will say, showed that the hive was not panning out as well as it might. In the old way I always had to rip off the super, tear away the honey with its burr and brace combs, and then crowd this way and that, one frame at a time, until I got room enough to pull out one all smeared with honey, to see whether the queen was laying regularly or laying at all. Now, when a frame is easily "getatable," as in the case of the self-spacers, the intelligent bee-keeper will judge almost unerringly the exact condition of the hive clear through the brood-nest, by seeing that one frame. For instance, if it is well filled with brood on both sides, and honey along the top-bar, it is pretty certain that every other frame, with perhaps the exception of the two outside ones, is equally well filled with brood. But if, on the other hand, the frame examined is sparingly filled, and no eggs, the indications are that there is very little brood in any of the frames, and that the queen is a poor one.

In conclusion, Mr. Hutchinson says that, in the use of non-burr-comb self-spacers, "we have destroyed that most convenient function of allowing frames a lateral movement." I just can't agree, anyhow. We get lateral movement in its perfection with self-spacers. Instead of fingering over each frame, four or five of the non-spacing sort, to get room to remove the one, we pry down in the center of the brood-nest, in the case of the self-spacers, and split it into horizontal halves, making a space of $\frac{1}{4}$ in. extra. Now it is easy to remove any one frame, because there will be no bulged combs; and the whole set of frames of either half may be handled *en masse*; two, three, or four frames may be shoved back and forth *at one operation*. That is why it seems to me that lateral movement can "be secured in its perfection, *only* by the self-spacing plan; but I grant there is no satisfactory lateral movement with the *standing* self-spacer; and what I have said implies the *hanging* kind. Now, if Bro. Hutchinson could work with us a couple of seasons—not that he lacks practical knowledge of the subject of bee-keeping—he would not depend on what "others say" on this question, but would conclude that the burr-comb nuisance, with self-spacing Hoffman frames, is *nil*, and that the very rare instances where they are built, and the very scarcity of them even then, is not worth considering at all. Say: can't you stop off from Toronto and let us show you several thousand Hoffman top-bars that have been in constant use four and five years, that do not show a trace of burr-combs, past or present? What you can see with your own eyes will be worth far more than what "others say" on this point.

A VISIT FROM THE EDITOR OF THE "AMERICAN BEE JOURNAL."

We all of us, big and little Roots, have had a most enjoyable visit from Mr. George W. York. From the very first a pleasant, and, I might say, a sort of kinship feeling, sprang up between us. I was attracted by his out-and-out spokenness, and gentle and Christianlike bearing; and the more I have come to know him, the more I esteem him—not as a rival, but as a co-worker. (Mutual-admiration society? Well, call it what you like, if I admire my friends and am not afraid to say so.)

Mr. York could stop but a very short time, so we endeavored to make the most of him while he was here. After showing him over the Home of the Honey-bees he made a remark something like this:

"Why, it seems to be ten times bigger in reality when I come to go through it than it appears on paper."

The point that pleased me was not the bigness of our establishment, but that we evidently had not tried to make the outside world think it is so much larger than it is in reality. Bro. Hutchinson, you remember, very kindly said of it, when here, that it was a good deal larger *inside* than outside.

Mr. York has had a good honey year, and one of his colonies has secured something over 100 lbs. of comb honey, a sample of which he brought. I believe it is about as fine-flavored honey as I ever tasted, alfalfa not excepted, and I thought so at the time I tasted it at his home last fall. It reminds one of a slight flavor of vanilla, and leaves a decidedly pleasant after-taste. In color it is a little darker than clover or basswood, and is somewhat of a greenish cast. He has asked me to name the source of it; but I never tasted any thing like it. Other bee-keepers, I am told, have been asked their opinion, and it seems they have been unable to tell what it is.

I suggest that the editor of the *American Bee Journal* take a ramble across the country, and follow those bees up. Let us have a name for that new honey. I might explain that his home where his bees are, is at Ravenswood, a suburb of Chicago, and his bees have access to the open country along the outskirts of the town.

Along in the afternoon we took a run through our apiary, went over the Hoffman frames, and manipulated that one Heddon hive; tried the shake-out function,* peered into queen-rearing nuclei; in fact, we were so busily engaged among those pets that we actually forgot our supper, and Mrs. Root had to send Huber over after us.

The next morning Mr. York was to take the train at Sterling, twelve miles south of Medina.

*It worked as it has always done for me—bees got all over the ground, up my pants legs; queen could not be found—in fact, it didn't work at all. I'd rather find queens in the good old way.

He wanted to go the night before and stop over at that point; but I wouldn't hear to that, for he must stay over with us. Our early trains not reaching there in time to catch his train, I drove down there with him; and such a delightful chat as we had in the early morning! We discussed bee-keepers, bee-papers, and bees in general; and you may be surprised when I tell you that we touched only incidentally upon the subject of amalgamation. Both of us were content to let the best judgment of the members of both societies settle the question.

THE DISCUSSION ABOUT THE BEST SIZE OF
HIVES; SHALL IT BE CONTINUED IN
GLEANINGS?

ALTHOUGH I have asked our readers once or twice whether the subject as above might not become wearisome, only one correspondent, so far as I know, has written a protest. All the rest have said, "Go on, Bro. Root; we are getting new light and new points." Bro. Hutchinson, in the *Review*, is frank enough to say that he is "really becoming tired of this discussion," because "so many of the correspondents are arguing at cross-purposes;" and that "it seems as though they were both right and wrong." Over against this, in the same issue, Mr. Hutchinson's right-hand man, the inimitable Hasty, says this:

The continued discussion of large and small hives in GLEANINGS seems likely to prove an eye-opener to us. We thought we had all the ways in which a journal could proceed, and we had not. The go-as-you-please way of every writer choosing his own subject, the question with symposium answers, snappy and right to the point, and the special number devoted to a special topic, all have been familiar to us this long time. In use, however, the second and third of these methods had got pretty well worn out, and yet very few questions in apiculture could be regarded as *settled*. It was left for GLEANINGS to take up a topic and stick to it, and squeeze it, and wring it, until the last drop of available juice had been wrung out. Why not, in the course of time, have each of the greater topics similarly treated? A joint agreement of the leading papers for this purpose wouldn't be amiss.

It seems to me Mr. Hasty pretty nearly hits the nail on the head. It was formerly supposed that a symposium in one number or two would just about settle a question; but as experience goes on, we have been shown many a time that our old conclusions were wrongly drawn; and it is only by *continued* discussion and digging up of the facts, or, as Mr. Hasty says, sticking to it and squeezing it, and wringing it until the last drop of available juice has been wrung out that we finally get at the truth. While I do not believe the question in GLEANINGS has been continued too long, perhaps some others feel like Bro. Hutchinson; and on the principle that a preacher who preaches too long a sermon spoils its good effect, it may be wise to draw the discussion to a close.

In the mean time, let us not forget that we have had a few "eye-openers." Let us rehearse just a few of them. (1) More bee-keepers are using cubical hives than we supposed. (2) A larger number find the ten-frame hive preferable to the eight-frame than we had any idea of; and (3) it is evident that some bee-keepers are, or have been, getting along with too small a brood-nest; and especially is this true in the South and West. (4) Some like divisible brood-chambers that can be contracted or expanded at will, and think this is the best solution of the problem. (5) Others who have tried them do not find them to be an entire success, and have finally concluded there is nothing better than full-sized brood-frames — that is, a brood-nest with a single set of combs.

But perhaps the biggest eye-opener of all is the fact that (6) the eight-frame hive is not as generally accepted as about the right size for all bee-keepers as we have thought.

Incidentally, I might say right here that the real thing in my judgment that brought the eight-frame hive into prominence a few years ago was the idea of contraction. It was then thought advisable to reduce the brood-nest anywhere from the full size of hive (ten) down to four, five, or six frames. Later on, eight frames seemed to be as small as it was advisable to go. When bee-keepers began to use a two-frame dummy or division-board in the ten-frame hive generally, they reasoned this way: "What is the use of my having two frames extra space and a dummy if I do not need them, when I buy more hives? All the brethren use the eight-frame, and I might as well fall into line;" but nowadays there is very little contraction, and many are beginning to feel that *any contraction* is a mistake, because it encourages swarming, and incessant swarming means little or no honey.

Another eye-opener, and closely related to that preceding, is (7) that bee-keepers at large have been running too much toward small sizes in hives, and now the tide is turning slightly the other way. Just where it will land, nobody knows. Now, the question arises in view of this, "Is it wise to stop right here?" I confess I do not know, and ask for greater wisdom of our many readers.

The interest in any discussion, it may be well to remark, depends largely on whether one is interested in the thing discussed, or in this case whether he is thinking of changing his hive; whether his hives are all worn out, etc. If one already has a lot of good sound hives, no matter what they are, he will usually say, "I will stick to what I have," and we will say he is right; but at the same time he has a sort of feeling that, when the general discussion shows *something different* as being better than what he is already using, it may become tiresome. But this does not apply to friend Hutchinson, I am sure.



FLORIDA TRAVELS.

At Kissimmee, when the train stopped we were welcomed by beautiful music from a brass band, played by a group of young ladies standing on the veranda of one of the fine hotels. I suppose everybody wonders at the queer name of this queer town, situated in one of the pleasantest parts of Florida. There are many stories in regard to its name. One is, that a very modest young miss inquired of a young gentleman whom she met, "Are you going to *Kissimmee*?" (meaning to inquire if he were going to the town in question). I did not learn what reply the young man gave; but when you come to hear the people speak of the town it sounds differently from what you would think to see it printed; for the accent is on the second syllable—the first light, and the last one very faint—*K'sim-m-y*. I had been intending to make some stop at the very pretty city of Orlando; but I was getting along so slowly I felt the necessity of hurrying up. Mr. E. J. Baird is a dentist. I went into his pretty office, and sat down until he had time to inquire my wants; and it was worth a small farm to see the sudden change in his countenance when he found the editor of GLEANINGS in his reception-room. He was so glad to see me that it seemed almost cruel to tell him that I must take the next train, and that I could not even visit his pretty home.

I omitted to mention, in the proper place, that, while we were passing through Winter Garden and Oakland, we had a view of beautiful Apopka Lake. But we had another view from the other side, as we passed the town of East Apopka. I pushed on to Tavares. Well, when you see Tavares in print it will trouble you to pronounce it, almost as much as Kissimmee, Thonotosassee, and other similar names. Tavares is to be pronounced this way—*Ta-var-eez*, putting the whole accent on the second syllable, giving the *A* the sound it has in the word *air*. I presume these beautiful names—these strange weird names that we find all over in Florida—were given by the Seminole Indians, and theirs is a wonderful history; but we have not space to go over it here.

I reached Tavares after dark, and it was raining. I was a stranger in a strange land, and I had purposed walking over to Mt. Dora before bedtime. I was told that it was at the other (the east) end of the lake giving the town its name; but of course the late hour and the rain and the darkness forbade. I was a little homesick, and longed for the companionship of friends, such as I had been meeting all through Florida. I put up at the hotel; but the colored waiters, with their starched and spotless linen, and high prices for every thing, to match, did not make my homesickness any better. I hope our colored brethren will not think I have any prejudice against them—quite the contrary; but I am prejudiced against any man or woman, colored or white, who looks down upon humble, every-day working people like myself, from the lofty heights of their starched and polished style. If I have not told it right, you probably know what I mean, any way. I told the lofty clerk I would pay for supper and lodging, as I wished to walk over to Mount Dora and take breakfast there. At this he drew himself up still more loftily, smiled in a supercilious way, and said I could never reach there on foot, for it was *eight* miles. I presume

he looked down with disdain and pity on the man who would get up at daylight and walk that distance for the sake of—well, we will say for the sake of being somewhere *else*. It seemed to me the price he charged was quite ample for a whole day's board and lodging. Was I doing the right thing to travel that distance on the Sabbath, to be among friends? Wait a little. I did not see a single human being on that whole trip, because I made it before anybody else was up. After walking a couple of miles along the shores of the pretty lake I began to experience the same sort of second wind in walking, that I do in riding a bicycle; and I burst forth in songs of praise and thanksgiving to the great Maker of heaven and earth. I told him my wants and needs. I could talk out loud, for the most of the way I was right in the wilderness, with the lake on one side, and, of course, there was none to hear but the birds that cheered me with their morning songs. I prayed out loud for the friends I had left, and for the dear wife and children at home, and for the boys who were bearing their burdens while I was taking things so easy. I asked the dear Father the question whether it was wrong for me to get up thus early and enjoy his holy Sabbath. If answers come to us in peace and joy, and an ease of conscience, then the answer came to me that I was in the straight and narrow path. My example was not bad, because I chose that early hour when nobody could have been offended or misled by my example.

I reached a hotel, and had a half-hour's rest before breakfast was ready. The distance was only *six* miles, and not eight, come to get there. The breakfast was much more to my liking; and the ways and manners of the people were in such strong contrast with those at Tavares that I expressed my satisfaction and thanks before all the guests. This seemed to break the ice; and after bantering me a little I felt fully acquainted with the people—enough so to express a wish that I might meet them all at the church during the forenoon; and I was rejoiced to see the faces of some of them there later on. This nice breakfast that suited me so well, both in quality and the way it was served, was 25 cts. My supper only, mind you, the night before, was 75 cts., and lodging 75 cts. besides.

Our good friend C. H. Longstreet resides at Mount Dora. He and his wife and all his house are good old-fashioned Methodists. I talked with the people at the Sunday-school at the pretty little Methodist church, and to the Endeavor society in the evening, at the Congregational church. Near Mount Dora I passed the beautiful Chautauqua grounds of Florida. Friend Longstreet is a gardener as well as a bee-keeper, and he showed me some of his work in sub-irrigation in Florida. He dug out the ground in one corner of his garden to the depth of a foot or a foot and a half, and then lined this excavation with water-lime cement spread right out on the ground. The cement was built up around the sides of the basin, so it would hold six inches of water. Then the hole was filled with rich soil. A tile was put down in to carry the water to the bottom of the cement basin; and when the plants need water it is poured in till the ground is saturated. The experiment was a complete success; and it gave the little orange and lemon trees a start away beyond those not thus irrigated.

The matter of having numbered tin labels for hives has recently been mentioned in GLEANINGS. Friend Longstreet makes a very neat tin label of can-bottoms. One edge is turned up so as to keep the tin flat, and secure from being bent or bruised, and there is plenty of room to print a large plain figure so you can read it as far off as you can see the apiary. Perhaps I

might remark that tin cans, and, of course, can-bottoms, are a little more plentiful in Florida than in any other part of the world. And this lets out the secret that, notwithstanding the great abundance of fruits and vegetables in Florida during certain seasons, there is nevertheless a tremendous traffic and consumption of almost all sorts of canned stuff brought from the North. Florida does not seem to have caught hold of the canning business very much as yet. The Seminole Canning Establishment at Fort Myers is, if I am correct, the only institution of the kind I came across.

On Monday, Mr. Longstreet's son very kindly took me, with his horse and buggy, over to Sorrento, where I met Nellie Adams, whom I have mentioned before as having regained her health and hearing since her sojourn in the land of flowers. Her brother has one of the finest orange-orchards in the whole of Florida, perhaps. He has a large rotary pump operated by a steam-engine on the banks of one of the most beautiful lakes I ever saw. He had just got the plant in working order, and I felt sorry I could not make him a visit at the proper time, and see him operate.

All through Florida I was told that no good brick could be made in that State. In fact, they shipped their brick by rail and boat all the way from Georgia; but in the neighborhood of Sorrento I was agreeably surprised to find brick-kilns making nice-looking brick of Florida clay, to ship by rail anywhere wanted. I stopped to ask a number of questions of the men who worked in the brickyard, and who were taking down the bricks in the kiln. Finally some one asked where I was from. I mentioned Ohio; and at a venture I said my name was A. I. Root. One of them started in surprise, and asked if it were really possible that I was the "A B C" A. I. Root. I asked him what he knew about the A B C book. He said he had read it all through, and so had another of the men. (Friends again where I least expected to find them.) My good friend Nellie declared I must let up on my flying trip long enough to visit a greenhouse conducted by a couple of sisters—special friends of hers. I suppose I looked a good many interrogation-points, for she replied:

"Yes, Mr. Root, there is a *greenhouse* down here in Florida; and as it is something unique I want you to see it. And these two women also manage it almost entirely alone."

In view of this, of course I was ready for the trip. Down among the beautiful flowers and the beautiful plants—at least, such as had survived the terrible freezes—I found two nice-looking girls hard at work among the plants they loved. The Brooks sisters have done business enough, I believe, to issue a small catalog. I can not tell you of the many interesting plants, flowers, and fruits that I found there. Their greenhouse is not covered with glass, but with cotton sheeting rolled on rollers. But they had not seen our tomato-book, and their arrangements are rather imperfect, so it seemed to me. During the last freeze they had a terrible time in protecting their stuff, even in a covered house; and one reason was because the force of the wind played such havoc with their curtains, as I knew it would as soon as I saw it. If I am correct, they have one building, something like 200 feet long by 50 wide, with cotton sheeting to cover it entirely when frost threatens.

At Orange City Junction, where I was obliged to wait for the train, I came across a lot of Congregational ministers. They were on their way to a conference at New Smyrna. While we were waiting for the train several of us visited the famous Blue Springs, only a mile or two from the junction. This blue spring takes its name from the beautiful transparent waters, with a

little tinge of indigo—enough to make the waters look like the vault of heaven on a summer's day; and on the pebbly bottom of the blue waters issuing forth from the great spring we saw the same beautiful colors, rivaling those of the rainbow, and incrustated with pebbles, shells, logs, and limbs of trees, and wonderful submarine mosses and other vegetation, until the bottom looked like an enchanted land. Great fish a yard long or more swam leisurely past us, or remained motionless until the gentle strokes of the oar startled them from their noonday reverie. A dear brother—at least I learned to consider him so—handled the oars so as to leave the surface as smooth as possible, that A. I. Root might gaze unhindered, and take in the shining beauties of the crystal depths. There may be other good people in the world; but, oh how safe I do feel in the presence of such men! I am never nervous for fear they may tell loose some startling oath, or that they may tell some impure story. What a wonderful privilege it is to be one among a company of men who are devoted, heart and soul, toward seeking first the kingdom of God, and his righteousness! We finally reached the end of the creek or river, and I gazed down into the crater where the azure waters boiled up. The country is so wild, rough, and broken in the vicinity, that almost the only access to the real head of the spring is by boat.

While riding on the train on my way back to New Smyrna, somebody touched me on the shoulder and said:

"Excuse me, sir; but did I not hear you say you are from Ohio?"

I assented. Then he asked me my name; and when I gave it I witnessed another sudden change in a stranger's countenance as he rose up and sat by my side, and told me his name was Donaldson, and that years ago he used to preach in Medina Co. He was another of the band of pastors on their way to the conference. During the afternoon, however, I slipped away from my pastoral friends; and before meeting them again I went through that little experience I have mentioned to you before at Lake Helen. While we exchanged mutual good-bys and God-bless-yous at New Smyrna, I gave them a brief account of my afternoon's experience. Said one of them (if I remember correctly it was Rev. W. S. Blaisdell, pastor of the Congregational church at Tavares, the very church I ran away from before anybody was up) something as follows:

"Brother Root, if these people all follow that little text you gave them ('thou hast loved righteousness, and hated iniquity'), all the powers of evil that the world contains can not lead them astray. Nay, farther: even the prince of darkness himself will be powerless to do you harm, no matter where you go, or what class of people you mingle in with. Only let that be the whole sentiment of your heart, the desire of your soul, to 'love righteousness and hate iniquity.'"

THE FLORIDA TRAVELS; BY A CALIFORNIAN.

Mr. A. I. Root:—I have just read "Florida Travels," and must say that it is wonderful how you take in every thing in your travels, at a glance, as correctly as you do. You have told nothing but the truth.

In February, 1884, we shipped 10 quarts of strawberries, in with another man's berries, and sold them through C. S. Durling, of Duane St., New York, for \$3.00 per quart. Our strawberry-vines began bearing in January, and continued until June. Ours were the Newnan Seedling. There are but few varieties that bear at all there. Our berries were on thin land; that did

the best. We had one acre that was very rich, but we got large vines and hardly any berries from it.

There is an orange-tree three miles south of Gainesville, on Alachua Lake, or Paine's Prairie, as it is called, that, in 1882, bore 18,600 oranges. A New England man bought them on the tree at 2 cents each. Now figure it up and see if it is not \$372.00. This tree is at Old Fort Harley; is 75 feet high, and 50 or 60 feet spread of limbs, and has had no cultivation or manure for years.

If you will look over GLEANINGS some years back you will find a communication from a man who had been in Florida a few months, condemning the Newnan strawberry. He said it was the poorest of poor berries. Evidently, he is not an A. I. Root kind of man.

Upper Lake, Cal.

G. P. SHIRES.



EARLY POTATOES.

This season we have had an unusual opportunity for testing the comparative earliness and other qualities of the new as well as the old sorts of early potatoes, for the frost cut them all down to pretty nearly one dead level. Various kinds of potatoes had been brought into the market when one man showed me several bushels so much larger, nicer, cleaner, and handsomer than any thing else, that I uttered an exclamation of surprise. Finally I said:

"Why, my good friend, what kind of potatoes are these? and how did you manage to get them of such size since the frost?"

"Oh! they were just coming out of the ground at the time of the frost: and as there was only an eighth of an acre I covered them with straw. Besides, they are Burpee's Extra Early. I have had them two seasons, and I pronounce them the best early potato in the market."

"Well, these are really Burpee's Extra Early, are they? And you live on clay soil, as I do, so you did not have really the best kind of potato ground. How many did you get from that eighth of an acre?"

"Why, there were just about 25 bushels, large and small. Of course, I brought you the best ones."

After some little urging he said he thought he ought to have about 65 cts. a bushel for the lot. I paid him 70 cts., and felt happy besides, and I guess he did too. Now, friends, here is a yield of 200 bushels of potatoes per acre, of about the handsomest potatoes you ever saw in your life; in fact, they brought 5 cts. a bushel more than he asked, on account of their size and beauty. Is not that money enough to make a man well satisfied? Early as it is, I am going to save these potatoes for seed. I am not afraid to undertake it, because I did the same thing last year. And, by the way, I have a potato-story to tell you.

On the 28th of June, after turning under some Parker Earle strawberries where we had had quite a heavy picking, we planted some Early Ohio and Lee's Favorite potatoes. They had been kept in the cellar, and had not been cared for as they should have been, especially during the month of June. Some of the sprouts were six inches long. But I directed the boys to turn the boxes upside down, pour the pota-

atoes out as carefully as they could, then separate them, letting the roots and sprouts remain on the potatoes as much as possible. Each potato was carefully put into the ground, the sprouts held up and planted as we would plant cabbage-plants. Some one who saw me taking so much pains said the sprouts were no good, and that I had better pull them all off. I knew better, however, for I have for many years tried the same thing. A pretty fair rain fell almost immediately afterward. The white, sickly-looking sprouts gradually turned dark green, and they began to grow. I knew what to expect; but this time the experiment went away beyond my expectations. Let me explain that the strawberries were mulched with coarse stable manure. This manure had produced quite a growth of weeds. Another coating of good manure was put on top of the weeds; and when we plowed, a man had to help put the stuff all under. We have a good plow, however, and the boys made a good job of both the plowing and the marking. The marker, however, which is Darnell's furrower, came so near tearing up the trash underneath that we covered them by hand. Well, before July was out these potatoes were knee-high, almost covering the ground, and some of them in blossom, and about the handsomest stand of potatoes you ever saw. Not a bug has ever touched them, and there are very few punctures from the flea-beetle. Of course, there is no symptom of blight. When I told people that that big stand of potatoes had been in the ground less than 30 days I almost feared they would think I was becoming reckless in my yarns about high-pressure gardening. The little patch is really an astonishment to everybody. With so much manure they may be scabby; but from similar experiments made in late planting I hardly think they are.

Now, when you have some potatoes left, and they get great long sprouts on, and become in consequence so soft that almost anybody would pronounce them unfit for eating or any thing else, just remember this experiment and see what you can do along in the same line. It takes some work to put them out properly. I know; but it is only just a little more labor in planting; and less labor, in fact, through all after-cultivation, for the potatoes are ahead of the weeds; and more than that, ahead of the bugs, and usually ahead of the blight.

SUB-IRRIGATION VS. TOMATO ROT.

Some time last fall Ernest decided that he wanted a water-closet in his bath-room. As the house stands a little higher than a part of the ground we use for market-gardening, I told him I would dispose of the sewage and water for him, without expense. Ordinary sewer-pipe, cemented at the joints, was used to carry the sewage down as far as the dividing-line between his ground and mine. Then it was turned into six-inch tiles. Each tile was one foot long, and they were buried from 20 inches to 2 feet below the surface of the ground, with the joints left a little loose. They ran down a pretty good incline under the pie-plant roots and other plants, for 30 or 40 feet, crossing diagonally three or four of my underdraining-tiles. Then we closed the opening, and covered the whole with earth. He felt uneasy about it, thinking the tiles might fill up, and back up so as to hinder the proper passing-away of the sewage. I told him the draining-tiles would carry away all the liquid portion, and that the roots of the plants would go down through the tiles, and dispose of all the rest. The apparatus has worked perfectly ever since, right through winter and summer. For some time, however, I did not observe the effect on plants

placed over the sewage-pipe, as I expected to. I began to think it was pretty low down. A week or two ago, however, along in July, I began to notice that the rows of tomatoes standing over the lower end of this sewage-pipe were of a bright thrifty green, and greatly overtopping the rest. The line of the sewage-pipe is now plainly discernible by the extra growth of pie-plant, tomato-plants, and every thing else over this tiling. Three or four days ago our good friend O. J. Terrell, of North Amherst, O., paid me a visit. After looking over the garden, and talking about the drouth, etc., he began examining my rows of tomatoes, trained after the experiment-station plan, on lath supported by a stout wire stretched between heavy posts. He gravely informed me that I should get hardly a good tomato from my whole plantation of several hundred large fine plants unless I gave them tremendous doses of water. And then he showed me a rotten spot on the blossom end of almost every tomato as it commenced to ripen.

"Mr. Root, that is the effect of a lack of moisture; and plenty of water is an effectual cure."

You may remember this has been suggested several times. I think the Ohio Experiment Station gave as their opinion that dry weather produces this kind of rot around the blossom end. But I rather maintained that the tomatoes had water enough. If we gave them any more on our rich grounds, they would all run to vines, etc. Finally a thought struck me:

"Oh! look here, friend Terrell. There is one thing I forgot to show you, and it is right pat to our discussion just at this minute."

Then I told him the story of Ernest's arrangement for his water-closet. Then we walked over to the spot where those great luxuriant hills stood. Lo and behold, they had grown so rank and heavy with their load of green tomatoes that they were pulling down the trellis. Two boys were called, and with stout stakes they pulled it up straight. Meanwhile friend Terrell was looking those lusty hills over, with the keen scrutiny of a scientist. He got down on his hands and knees; he crawled between the bushes; he peeked in here and there. Finally he stood up with a triumphant look on his face, and said:

"Bro. Root, you have seen the rotten-spotted tomatoes all over your plantation, where I pointed them out to you. You have even seen a bunch of pear tomatoes with a black rotten spot at the blossom end of each one on the cluster, and I told you your crop would be ruined if you did not pour on water, and lots of it. Now look here. I will give you a *dollar apiece*—mind you, a dollar—for every tomato with a rotten spot on it that you can find on these bushes that stand over or very near these five-inch tiles flooded with water, and something a little richer mixed in, say several times a day."

There, friends, you have got the fact. Ernest and I figured up that perhaps 12 or 15 gallons of water a day are flushed into those tiles. But it does not cost a cent. It is a perfect automatic arrangement. It is not only automatic in giving a tremendous crop of the handsomest tomatoes you ever saw in your life, but it is also automatic in disposing of all the sewage from the household. The whole thing stands right close by the street, and anybody can come and look at it who thinks I have exaggerated it. Because of the rot in tomatoes that has made such havoc, my loss for several seasons past has been because of a lack of water; and the remedy—at least one remedy—is sub-irrigation. And I have told you very plainly just exactly how to manage it. Somebody may suggest

that these small tiles will in time fill up, and will have to be taken up and cleaned out. Well, even if they do we can afford to do it; and very likely it will be as well or better to run the tiles a greater distance from the house, say a hundred feet or more. I do not know whether the roots of those rank-growing tomato-plants were down inside of those big tiles or not; but I rather suspect they are. In fact, that is where I planned to have them. The tiles are so large I think it will be a good while before they will be so filled up with roots and trash that the water can no longer get through them. Can any one suggest a cheaper way in the long run to manage a water-closet? And just contrast the beauty and simplicity of such an apparatus with that of an out-building with a pit or vault under it, full of the most disagreeable mixture that can well be thought of. Such things are a disgrace to the present age—at least, after one has the means to do better. And even if you have not the means, I would adopt the plan they have in Florida—the same one recommended by T. B. Terry—of having galvanized iron pails to be emptied on the garden whenever necessary. Do not, under any circumstances, have a pit or vault in the ground to endanger your wells and cisterns.

FORCING VEGETABLES UNDER GLASS.

The Cornell University Experiment Station (Ithaca, N. Y.), has just given us some exceedingly valuable bulletins on this subject. I speak of bulletins Nos. 95 and 96. If they are not furnished free on application, Prof. Bailey will surely tell you on what terms they can be had. No. 95 tells all about raising melons under glass. No. 96 discusses Grand Rapids and other kinds of lettuce: cress, egg-plant, and peas. There is also a chapter in regard to bees in greenhouses; another on the controlling of pests by fumigation. But the most valuable part is the arrangement of beds, glass, etc., for high-pressure gardening. I have never yet succeeded in growing nice celery in the winter in a greenhouse nor even in a cold-frame. As it is so easily wintered over until February any way, it is not worth while to grow it under glass, to be ready for use before March. During March, April, and May, people can always be found who will pay large prices for a nice article; and this bulletin tells how to make a success of it. The work is done by Profs. Bailey and Lode-man.

SWEET CLOVER—IS IT A NOXIOUS WEED?

In what is called the "Legal Department" of a recent issue of the *Ohio Farmer* I see in two separate places sweet clover mentioned among the class of "noxious weeds" that are under the ban of the laws of the State of Ohio. Now, I do not know how this came about, but there surely is a great blunder somewhere. First, you can not call any plant a noxious weed that is greedily devoured by horses and cattle when they can get at it. If sweet clover ever grows in pasture-lots, especially where the pasture is short, I have never yet met with such a case. It is true that stock, a good many times, need to be educated a little to like it; but our horses will now eat the dry brush after thrashing out the seed. Second, sweet clover has been for years past quoted regularly in the market, among other clovers. It is at present quoted by Nungesser & Co., 65 Pearl St., New York, at \$14.00 to \$16.00 per 100 lbs.; and there is a good steady demand for it at that price. Do the seeds of noxious weeds have a regular merchantable value? Perhaps I should be a little modest in speaking of the *third* reason why it should not be called a noxious weed. It is one of the recognized sources of some of the

finest honey that is produced in the world. In Utah it grows on the arid plain, and furnishes this beautiful honey by the carload, besides being next to alfalfa as a forage plant; and it also performs the important office of taking the alkali out of the "saleratus soil," as they call it there, so that the ground eventually becomes fitted for regular farm crops. Fourth, sweet clover sends its roots down about as deep as any clover known, into the very hardest soil, and brings up its fertility, and it is never heaved out by the frost. So far as I am informed, the frost has never yet been able to budge a root of it after it had made one season's growth. It dies, root and branch, as soon as it bears a crop of seed. I never heard of its being hard to eradicate.

OUR CRAIG AND OTHER POTATOES UP TO DATE.

The early potatoes mentioned on page 641 are now, Aug. 14, a perfect swamp of vines, and the ground is bursting open with potatoes already the size of hens' eggs. How is that for only about six weeks from the time of planting? Our Craig potatoes are also making a perfect swamp of dark-green foliage—no symptom of blight, and no trouble from the severe drouth, and not a bug on them anywhere. Prof. E. C. Green, of the Ohio Experiment Station, who has just been looking them over, says that, if nothing hinders, there will certainly be 300 or 400 bushels per acre. Of course, an early frost might cut short the yield somewhat. Mr. Green said he doubted whether there was a better field of two acres in the whole State of Ohio. I certainly have seen nothing like it in my travels. The whole two acres is now well mulched with coarse stable manure. This mulching holds the moisture from the rains we have been having, so they are not likely to suffer much, whether it rains or not; and I am rejoiced to know that the Craig Seedling is holding up bravely the reputation I gave it from the record of those ten hills last year. Those who have the Craigs had better take good care of them, and not be in a hurry to sell. Some sort of price will be fixed on them later.

CLOVER-MIDGE, OR SOMETHING ELSE; WHAT THEY LOOK LIKE, ETC.

In GLEANINGS for June 15 I noticed an editorial on the clover-midge and its work on the red clover, in which you said you had not as yet noticed that the midge had attacked the white or alsike clover, and said you would like to hear from your readers.

One year ago last spring I sowed an eleven-acre field to alsike clover. About four acres along the north side of the field was gravelly ground on which the clover died out during the drouth of last summer. The rest of the field had a nice stand of clover this spring; but, being short of corn ground, I concluded to plow up all but about three acres in one corner of the field, and put it in corn. I noticed, when I was plowing, that the clover-leaves were all full of holes, but I did not know at the time what caused it. I marked out the field both ways with a sled marker, and planted it with a hand-planter. I commenced to plant early in the morning, and I was surprised to find the marker-marks almost green with worms on that part of the field where there had been clover. There were no worms where there had been no clover. I counted 35 worms in one mark, within a space of 7 feet. They evidently had come to the top of the ground to feed on the clover, as they disappeared again in the ground when the sun got hot during the day.

A few days after I had planted the corn I pulled some pigeon-weed out of the clover on

that part of the field which I had not plowed, and I found the same kind of worms at work on the under side of the clover-leaves, although the leaves looked, as you said, as though they had been riddled with shot. I do not think that it has hurt it any for seed, as the heads seem to be fairly well filled. The worms were green in color, and all the way from $\frac{1}{4}$ to $\frac{3}{4}$ inch in length. Were they what you term the clover-midge? C. C. WELSH.

Fostoria, Ohio, June 25.

[Friend W., the green worms you speak of are not what is known as clover-midge. Will our Ohio experiment station please straighten us out?—A. I. R.]

HOW TO PROPAGATE AND GROW BASSWOODS, ETC.

Can you tell me how to propagate and grow the basswood and Russian mulberry?

Gracy, Ky., July 31.

J. G. NANCE.

Basswood-seeds must be gathered when fully mature, and planted in good soil. Give them a mulch of some kind, say forest-tree-leaves. I suppose a mulch of any sort of grass would do as well. They need to be planted as soon as gathered, and left outdoors to freeze and thaw. The plants will come up in the spring about the time that weeds start. After this they can be handled about like any other nursery stock. As their natural home is the forest, however, in more or less shade, a shading of slatted shutters, or one made of lath or cotton cloth, seems to be a benefit. They can grow quite close together until they are a foot high, when they should be transplanted in rows wide enough apart to cultivate, and about six inches apart in the row. The distance apart depends, of course, on how long you let them stand. If you are going to plant a basswood-orchard, I would put the trees only 15 feet apart each way, cutting out half of them when they get large enough to make valuable timber. This thing should be kept in mind with all sorts of forest-trees: During our hot dry summers, shading and mulching are always of benefit; and, in fact, I have seen basswoods do better right in a thicket of briars than when standing out in a clean cultivated field. The briars and brambles must, of course, take the moisture and fertility from the ground; but they furnish dense shade and mulch. A mulching of forest-leaves is probably better than anything else you can give. I am not familiar with the cultivation of the mulberry: but I think likely the above would apply to the mulberry also, except that it is more of a cultivated tree than the basswood.

NIGHT-SOIL; HOW TO USE IT.

Friend Root:—Please inform me how I can best use the contents of privy vaults instead of artificial fertilizer on celery grown after the Nivens method, and only a short distance from the house. I water with hose from tank a few feet above. It should probably be deodorized, and mixed, to make of even consistency. I have some 4000 plants on some 65 square rods.

Utica, Ill., July 1.

ALFRED MOTTAZ.

Friend M., your ideas are about right; but I do not believe your compost will be suitable for celery by the Nivens or any other method until it has had time to "ripen," as gardeners term it. This stuff is too rank for most vegetables unless composted with stable manure, muck, weeds, or something of the sort, and allowed to stand, say, six months or a year. Then it will produce very good results. But the value of it, I am inclined to think, has been somewhat

exaggerated. I would rather have a ton of good old stable manure than a like quantity of the best night-soil.

Additional Editorial.

MR. HUTCHINSON, in the *Review*, pertinently asks the question, in reference to the subject of number-tags for hives, "Why is it necessary to have numbers at all?" Our colonies at the Home of the Honey-bees have never been numbered, because we did not consider it necessary. But a large number of practical bee-keepers, Dr. Miller among them, consider it almost indispensable. This is especially true when record-books are kept.

THE amalgamation of the N. A. B. K. A. with the B. K. U. is still somewhat an open question. A great majority, I fear, do not care very much one way or the other; but those who have expressed themselves at all, seem to be nearly all in its favor. So far as I can see, there is every argument in its favor, and little or nothing against it; and were it not for the General Manager of the Union, under whose leadership that organization has done so well, I should feel that the combining of the two societies was a virtually accomplished fact. I rather suspect the subject will be warmly discussed at the next meeting at Toronto.

SOME one has said that Dr. Miller ought to label his jokes; at all events, a writer in one of the Australian papers takes one a little seriously. Here is what he says:

Dr. Miller's Straws seemingly at times get very much astray. Here is a sample from GLEANINGS: "The *Australian Bee Bulletin* says, at the last of January, 'Swarming may now be said to be practically over.'—I should think so! That accounts for the big crops they get there. We could get big crops too if we would work the poor bees right through the winter."—The good doctor has evidently lost sight of the fact that, while January is the middle of winter in the northern hemisphere, it is the middle of summer here in Australia.

If the writer of the above could have seen the comical twinkle on the doctor's face, he would not have found it necessary to explain to him what was perfectly evident to the doctor. Now the joke is on [loud laughter] our Australian friend.

THE GOOD AND BAD FIVE-BANDERS.

ONE good brother bee-keeper, a queen-breeder, writes that I am doing an injustice to a certain class of breeders when I say that the five-banders are not all bad, and that this stock from some breeders is all right; that, moreover, when I do not specifically name the breeders who furnish the nice five-banders, the good breeders are classed with the bad. Well, I grant there is something in this; but if I

specify the former, those not mentioned would "howl," and claim that they were not used right. Furthermore, I do not know all of the breeders who are conscientiously rearing five-banders that are strictly from Italian stock, and are all that is claimed for them; and I do not feel it my duty to keep still when I know that at least part of the five-banders that are reared, and perhaps a large percentage, are as cross as hybrids, and lacking in good wintering qualities. I do know that very little fault is found with leather-colored stock reared by any breeder. This stock does not win favor because of beauty, but because of real merit; and real merit is bound to win and bound to please in the end.



No more figwort seed wanted.

HONEY-PACKAGES.

We have a good supply of honey-packages, listed in our catalog, ready for prompt shipment to those in need. If there is something in the line of honey-packages which you prefer, and we do not list, call our attention to it and we may be able to supply you. We have something new to offer which we will illustrate in our next issue.

BUSHEL BOXES.

We are having a booming trade in bushel boxes, the orders averaging 300 to 500 a day. We are getting them off with reasonable promptness, considering the disadvantages under which we work with our wood-working building shut down for repairs. We expect to be running again full blast within a week or two at the outside, and can take care of all orders entrusted to us. We have a rip and a cut-off saw in our packing-room, to fall back on till our other machinery is in shape to run.

CALIFORNIA SAGE HONEY.

Our car of extracted white-sage honey has just arrived as we go to press, and proves to be extra fine and white so far as we have examined it. This is the kind of honey which does not granulate, and for that reason it is very desirable to put up in glass packages for retail, because it remains liquid almost indefinitely. We offer it in cases of 2 cans, 120 lbs. to the case, at 8 cts. per lb. A single can at 8½ cts.; large lots at special prices quoted on application. Samples free to prospective customers; to others, 5 cts. each to pay for package and postage.

THAT NEW EDITION OF THE A B C OF BEE CULTURE.

We are pleased to announce the long-looked-for and much-sought-after new edition, the 62d thousand, is finally completed. We have been a long while in getting it from the press, it is true; but besides the usual large revisions, we have added 48 extra pages of entirely new matter to an already large book, so that it now contains 472 pages, double column, like these, and still the price will not be increased. Besides the numerous changes and additions to the body of the work, to bring the matter clear up to the present state of the industry, we have greatly enlarged the biographical department, and new faces of prominent bee-keepers, who have made a success, are shown with appropriate sketches. The picture-gallery also comes in greatly expanded, with short description of each picture. These pictures are large half-tones illustrating apiaries, exhibits, and other phases of bee-keeping.

Although the work is supposed to cover every subject on which beginners desire information, we have collected together in one department of 32

pages, "Answers to Questions from Beginners." These are practical, every-day questions, representative in their character, that we have picked up for the last three or four years in our correspondence, and have subsequently been answered in the pages of GLEANINGS. It might almost seem superfluous to have them in a text-book at all, since many of the questions are answered in the body of the book. But experience has shown that certain specific cases arise in special localities requiring specific answers, and as these questions are repeatedly asked we feel that the answers will prove here, in permanent form, valuable to many others. To facilitate reference, questions of a kind are grouped together; for instance, questions concerning comb and extracted honey are by themselves, and in like manner those touching feeding and bee-pasturage, etc., and so on clear through.

The whole work, from fly-leaf to fly-leaf, has been all gone over and thoroughly revised, so we believe it is fully up to the times, is comprehensive, and as specific as it is possible to make any text-book. No expense has been spared in its preparation in the way of engravings; and certainly no beginner who is able to keep even one hive of bees can, for the small sum of \$1.25, afford to be without it. As formerly, this book can be had of all dealers in bee-supplies.

WHAT SHALL WE PLANT DURING THE LAST OF AUGUST?

Kidney wax beans will make green beans for table use and pickles, if the frost holds off, ordinarily. And speaking of string beans reminds me that our "Best of All" green-podded string bean is now ripening its crop of seeds. Our people around here pronounce it the most tender and luscious string or snap bean they ever came across; and if you do not use them all green they are a splendid shell bean for the table. This bean is certainly an acquisition. My attention was first called to it in Florida, and our crop is principally for the Florida trade. As it matures quickly, I think you can get green beans yet this fall from seed sown at once. Price, per pint, 10 cts.; quart, 15 cts.; peck, \$1.00; bushel, \$3.50; 5 bushels, \$15.00; 10 bushels, \$25.00. If wanted by mail, add the customary 15 cts. per quart for postage.

Eclipse beets will be just right for table use late in the fall. They will stand a considerable frost without injury.

If you can get cauliflower-plants, now is the best time in the year to set them out, in my opinion. We always get nice ones during the cool frosty weather of October and November—in fact, the nicest we get at any season of the year.

Celery will do if you have great big plants, and ground that is tremendously rich with stable manure.

Corey's Extra Early corn will surely make fodder, and may make roasting-ears.

During this month and next is the time to plant out winter onions and sets, white multipliers, and American Pearl. See prices on page 573 of our issue for July 15.

Alaska and American Wonder peas will often produce a good crop when planted the last of August.

All kinds of radishes flourish now as well as or better than at any other season. But the Chinese Rose Winter is considered the best for fall planting.

Now is just the time to get in spinach; but, like celery, it wants the very richest ground that you can fix up, to come to real perfection. Remember, this plant, with a little protection, can be left out of doors all winter; but it is a great deal finer if you have some glass or even cotton cloth to put over it during extreme weather.

Purple-top Globe turnips sown now will give you the very best table turnips, although they are likely to be injured by the frost before they get to be of very much size.

Asparagus and horseradish roots can be planted in August and September; but as a rule you had better wait until the last of next month, or even in to October.

This is the great month for planting strawberries; and, thanks to our recent abundant rains, we are ready to supply almost any quantity unless it should be the Parker Earle and Edgar Queen. These are so late with their crop of fruit they have not yet made very many runners.

In regard to honey-plants, buckwheat put in now may escape the frost; better put in some crimson

clover with it, however, and then you will have two chances for a crop for the bees instead of one.

Alsike and White Dutch, peavine and mammoth clovers, sometimes make a stand sufficient to go through the winter; but it is risky business.

I do not know much about alfalfa; but I think that, in our locality, it is better to sow it during June. Rape can be sown for bees during this month or next, as it blossoms sometimes in four or five weeks after sowing. Borage will also make blossoms; but as it seems to have but little use except for honey, very little of it is sown nowadays. Seven-top turnip can also be sown any time this month or next; but this plant has also dropped out of use, as it is of but little value except for honey. A small patch of it for early greens in early spring, however, is a pretty good thing, and it is a splendid plant to turn under for enriching the ground.

AMERICAN PEARL ONION-SETS.

We are just now harvesting the finest crop of these we ever raised. As we put in a pretty heavy seeding, there are a good many small ones mixed in—some not larger than peas. These small ones are less likely to send up seed-stalks; and as they are sold by measure you get a greater number of onions for your money where the sets are small. Price, quart, 25 cts.; peck, \$1.50; bushel, \$5.00. The price of the large-sized sets, say an inch in diameter, or more, will be just half the above prices. These are just as good in every way, except that you will have to take more pains to break off the seed-stalks as fast as they appear next spring; and you will not get so many sets in a bushel if you use the large-sized sets. Now, and during the month of September, is the time to plant them. We have had the best success in wintering where they start and grow, and get well rooted in the fall. These onions have been described so often that I suppose almost every one is more or less acquainted with them by this time.

Winter rye, the well-known strain that we have been furnishing for so many years past, \$1.00 per bushel; 2 bushels, \$1.80, bags included.

KIND WORDS FROM OUR CUSTOMERS.

I am pleased with the hives, and we think the lawn-mower is perfection. GEO. W. RUSSELL.
Ocoonita, Va., June 10.

I should like A. I. Root to see he is not fighting a battle against the swindlers single-handed. I am thankful that on this side of the globe we have men who are not afraid to speak the truth. I desire to thank him for the way in which he has shown up the electric gentlemen. M. EVANS.
North Ipswich, Queensland, June 5.

CRANE SMOKER A DANDY.

I received my order, 39,859, day before yesterday, and find every thing exactly right. This is the best hive I ever saw, and the thick top will stand our hot suns. The Crane smoker is a dandy. I am greatly pleased with these things, and extend you my sincere thanks. W. P. MOORE.
Portland, Tenn., July 15.

A KIND WORD FROM ARKANSAS.

Bees and honey crop are good; fruit of all kinds never better; corn and cotton and potatoes, oats and hay, in fine condition. Come down this fall and I will give you a bear-hunt. ANTHONY OPP.
Helena, Ark., June 29.

[Well, well! I have had invitations that were hard to resist, a good many times, but I do not know that I was ever before asked to go on a bear-hunt—and come to think of it, from an old friend whose name has been on our subscription-list so long that it looks like one of the old landmarks; and that is what makes it specially hard to resist. Friend Opp, how fast can a bear run when it is right down mad? Could I take my wheel along? Is bear meat good to eat? Suppose you should take me off on a bear-hunt, and I should get hugged to death—what would become of Mrs. Root and the rest of them away back here in Medina? Now, then, you look out or you may get taken up. Thanks for the invitation, any way.—A. I. R.]

Promptness is What Counts.

Honey-jars, Shipping-cases, and every thing that bee-keepers use. **Root's Goods at Root's Prices, and the Best Shipping-point in the Country.** Dealers in Honey and Beeswax. Catalog free.



WALTER S. POWDER,
162 Massachusetts Ave., Indianapolis, Ind.

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians**, the result of 16 years' careful breeding.

Dr. H. B. Lung, Harrodsburg, Ky., says: "I have had the pleasure of seeing many fine strains of bees, yet I have never seen such industrious, energetic bees. I must express my admiration for your success as a bee propagator."

Warranted queens, 80c each; 3 for \$2.00. Select warranted queens, \$1.00 each. Safe arrival and satisfaction guaranteed.

Those who have never dealt with me, I refer to A. I. Root, who has purchased of me 808 queens. Circular free.

J. P. MOORE, Morgan, Pendleton Co., Ky.

In responding to this advertisement mention GLEANINGS

BEGINNERS.

Beginners should have a copy of the Amateur Bee-keeper, a 70-page book by Prof. J. W. Rouse. Price 25 cents; if sent by mail, 28c. The little book and the Progressive Bee-keeper (a live progressive 28-page monthly journal) one year, 65c. Address any first-class dealer, or

LEAHY MFG. CO., HIGGINSVILLE, MO.

In responding to this advertisement mention GLEANINGS

MUTH'S HONEY-EXTRACTOR, SQUARE GLASS HONEY-JARS.

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "Practical Hints" will be mailed for 10c in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.

Golden Queens From Texas.



My queens are bred for business, as well as for beauty and gentleness. Safe arrival and reasonable satisfaction guaranteed. Untested, 75c; warranted, \$1.00. Write for price list.

5-16ei

J. D. GIVENS, Lisbon, Texas. Box 3.

"The Market Garden."

A Monthly Journal

For Market-Gardeners and Truckers.

50 Cents a Year. Sample Copy FREE.

THE MARKET GARDEN CO.,
Minneapolis, Minn.

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TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee Hives, Shipping-Crates, Frames, Foundation, Smokers, etc.

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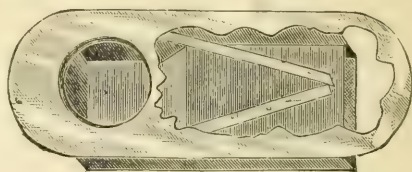
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Advantages of Bee-Escapes.



No sweat steals down the heated cheeks and aching back of the bee-keeper as the result of standing in the hot sun puffing, blowing, smoking, and brushing bees; no time is wasted in these disagreeable operations; and no stings received in resentment of such treatment: the honey is secured free from black or even the taint of smoke; the cappings are not injured by the gnawings of bees; and robbers stand no show whatever. If there are any broken burr-combs they are cleaned up by the bees inside the hive, before the honey is removed. **Leading Bee-keepers use the Porter Escape**, and say that without a trial it is impossible to realize the amount of vexatious, annoying, disagreeable work that it saves. The cost is only 20 cts. each, or \$2.25 per doz. As in the past, this escape is manufactured by the Porters, but The A. I. Root Co. has secured control of the sale for this country. Order of your dealer or of

THE A. I. ROOT CO., Medina, Ohio.

DAUGHTERS OF IMPORTED MOTHER, 50 cents

each; 3 for \$1.25; 6 for \$2.25; 12 for \$4.00.

ALBERT HINES, Independence, Iowa, Box 532.

GOLDEN QUEENS

Bred for business. Untested, 65 cents each; 6 for \$3.25. Tested, \$1.00 each. Fine breeders, \$2.00 each extra. Select straight 5-banded breeding-queens, \$4.60 each. To all new customers one **GOLDEN QUEEN** for 50 cts. Satisfaction and safe arrival guaranteed.

E. A. SEELEY, Bloomer, Ark.

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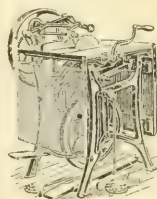
45,000 Lbs. of Honey in 1894.

He offers Italian Queens—good, old-style honey-queens—untested, first order, to any address, at 50c each. Also bees in any quantity; 450 colonies to draw from. **Root's goods constantly in stock.** Prices to suit the times. Buy near home, and save freight.

World's Fair Medal

Awarded my **Foundation**. Send for **free samples**. Dealers, write for wholesale prices. Root's new **Polished Sections** and other goods at his prices. **Free Illustrated Price List** of every thing needed in the apiary. **M. H. Hunt.**

Bell Branch, Mich.



ONE MAN WITH THE UNION COMBINATION SAW Can do the work of four men using hand tools, in Ripping, Cutting off, Mitering, Rabbering, Grooving, Gaining, Dadoing, Edging-up, Jointing Stuff, etc. Full Line of Foot and Hand Power Machinery. Sold on Trial. Catalog Free. 1-24ei
SENECA FALLS MFG. CO.,
44 Water St., Seneca Falls, N.Y.

In responding to this advertisement mention GLEANINGS

«MONEY-MAKERS»

Are a strain of business Italians that winter in the cold North, and are ready for business, with a bushel of bees, when the flowers bloom. They are gentle and industrious. Queens, warranted pure, in June. Each, \$1.00; six, \$5.00; doz., \$9.00. Safe arrival and satisfaction guaranteed. Never had any disease.

Address **E. F. QUIGLEY, UNIONVILLE, MO.**

In responding to this advertisement mention GLEANINGS

Warranted 95 per cent of Queens Purely Mated,

at 50 cents each; 6 for \$2.75, or \$5.00 per dozen, from a Golden breeder obtained of Doolittle, which he selected and tested out of 1000 queens, for his own special use, or from one of A. I. Root's very best imported breeders. Bees from my queens are gentle, and excellent honey-gatherers. No disease.

Ask for free circular. Satisfaction and safe delivery guaranteed.

H. G. QUIRIN, Bellevue, Ohio.

"The Southland Queen."

Send \$1.00 for the Southland Queen. Edited by the Atchley family. Plain, practical, and all fresh bee matter. Jennie Atchley will begin a Bee-keeping school in June 15th No. All that wish lessons, come in. A steam beehive factory, Root's goods, Dadant's foundation. Send for free catalog and sample journal.

THE JENNIE ATCHLEY CO.,
Beeville, Bee Co., Texas.

Golden or Leather Queens

From the Queen Specialist. . . .

Golden queens from Duvall's best; dark leather queens bred from the celebrated Manum stock (queen mother selected and tested by him).

My drones are all bred from a colony that wintered successfully on summer stand without protection, bees gentle and excellent workers.

This colony is the result of seven direct crosses of golden Italians, selecting the most desirable for breeders each spring, regardless of color.

Nearly every queen mates with selected drones as there are no bees within several miles of my yard. Duvall strain will produce nearly all 5-banded bees, Manum stock 3-banded.

Price 75 cts. each. Safe arrival guaranteed, and shipped by return mail if desired.

Money-order office, North Dana. Address

JAMES WOOD.

North Prescott, - Massachusetts.

In writing advertisers mention this paper.

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

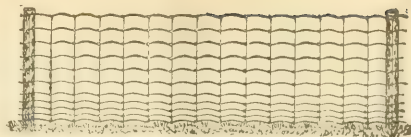
Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,

1217th Sole Manufacturers,
Sprout Brook, Montgomery Co., N. Y.

In responding to this advertisement mention GLEANINGS.



Makeshift Fences Make Shiftless Farmers

Not only that, but they have a demoralizing effect on the live stock of the farm. Here is a sample. Three respectable looking cows, in a good sized pasture, each cow with a yoke on her neck as large as a hen-coop. Comfortable outfit for hot weather!! That farmer has evidently been monkeying with fences "just as good as the Page."

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

In responding to this advertisement mention GLEANINGS.

Aluminum Bicycles, 15 Lbs.

Steel Bicycles, highest grade, factory price, \$125.00; my price, \$65.00. Send for catalog.

ROBERT B. GEDYE, La Salle, Ill.

CRIMSON CLOVER.

Send your address on a postal and get the most complete instructions ever printed. Tells what seed is hardy. How to succeed in dry weather. Tells everything. Don't spend any money until you read it.

J. A. Everitt, Seedsman, Indianapolis, Ind.

In responding to this advertisement mention GLEANINGS.

ROOT'S GOODS at ROOT'S PRICES FOR THE WEST.

Order of us and save freight. Goods at wholesale and retail. A full line of Dovetailed Hives, Sections, Foundation, Extractors, and every thing else of the latest and best.

JOSEPH NYSEWANDER, Des Moines, Iowa.

GOLDEN QUEENS

Bred for business. Untested, 65 cents each; 6 for \$3.25. Tested, \$1.00 each. Fine breeders, \$2.00 each extra. Select straight 5-banded breeding-queens, \$4.00 each. To all new customers one GOLDEN QUEEN for 50 cts. Satisfaction and safe arrival guaranteed.

E. A. SEELEY, Bloomer, Ark.

P. O. Money Order office, Lavaca, Ark. 7-20



ONE MAN WITH THE UNION COMBINATION SAW Can do the work of four men using hand tools, in Ripping, Cutting off, Mitering, Rabbeting, Grooving, Gaining, Dadoing, Edging-up, Jointing Stuff, etc. Full Line of Foot and Hand Power Machinery. Sold on Trial. Catalog Free. 1-24ci

SENECA FALLS MFG. CO.,
44 Water St., Seneca Falls, N.Y.

In responding to this advertisement mention GLEANINGS.

FENCE

Why pay 60 to 90c. a rod for fence when you can make the
**BEST WOVEN WIRE FENCE ON EARTH
FOR 13 TO 20 CENTS A ROD?**

Horse high, bull strong, pig and chicken tight. A man and boy can make from 40 to 60 rods a day. Over 50 styles. Illustrated Catalogue Free.
KITSELMAN BROTHERS
Ridgeville, : Indiana.



HONEY COLUMN.

CITY MARKETS.

CHICAGO.—Honey.—We find a steady demand that takes all arrivals of comb that is first quality at 15c. The off grades bring 9 to 13, according to color, quality, and condition. Extracted, white, 6½@7; amber and dark, 5@6. Beeswax sells on arrival at 25@27, according to color and cleanliness.

R. A. BURNETT & Co.,

Aug. 20. 163 So. Water St., Chicago, Ill.

KANSAS CITY.—Honey.—The receipt of new comb and extracted is fair, and the demand not large, but will increase with cooler weather. We quote new 1-lb. comb, No. 1 white, 14@15; No. 2, 12@13; No. 1 amber, 11@12; No. 2, 10@11; extracted, white, 6½@7; 6½; amber, 5½@6; southern, 4½@5. Beeswax, 22@25.

C. C. CLEMONS & Co.,

Aug. 20. Kansas City, Mo.

KANSAS CITY.—Honey.—We are receiving new comb and extracted. New white comb, 14; extracted, white, 6½@7; dark, 4½@5. Demand good. Beeswax, 22.

HAMBLIN & BEARSS,

Aug. 24. Kansas City, Mo.

BUFFALO.—Honey.—The demand for new honey is slightly increasing, but as yet very little is coming forward. We would advise early shipments of light stock, which no doubt would result well here, and would possibly bring 14@15 for fancy; other grades, 10@12; buckwheat moving very slowly.

BATTERTON & Co.,

Aug. 20. Buffalo, N. Y.

ALBANY.—Honey.—New comb honey meets with a ready sale. Have had a number of small consignments, and disposed of them soon after arrival. There is also quite a demand for extracted in glass jars put up in attractive style. We quote white comb honey, 12@15; mixed, 11@12.

CHAS. McCULLOCH & Co.,

Aug. 20. Albany, N. Y.

BOSTON.—Honey.—On account of the warm weather there is but little call for honey, with a fair supply of new stock. We quote comb, 16c. Florida extracted, 5@6; California extracted, 5@6½, with a light demand.

E. E. BLAKE & Co.,

Aug. 19. Boston, Mass.

CHICAGO.—Honey.—We quote fancy white 1-lb. section comb honey in nice clean packages at 16c; other grades of white honey, 14@15; amber, 13@14. We are having a good trade in extracted honey, selling light amber and white at from 6@7; dark, 5@5½, depending on quality and style of package. Early shipments to market advised so as to permit of sale before cold weather sets in. Beeswax, 28.

S. T. FISH & Co.,

Aug. 22. 189 South Water St., Chicago, Ill.

CLEVELAND.—Honey.—Our honey market is picking up. No. 1 white comb in 1-lb. sections is selling at 16c. White extracted, 6@8. Beeswax, 25. There is call for new honey, and we look for better prices than last season.

WILLIAMS BROS.,

Aug. 7. 80 & 82 Broadway, Cleveland, O.

PHILADELPHIA.—Honey.—Honey is arriving more freely, but the demand has not sprung up; yet we are making some few sales both of extracted and comb. We quote new extracted, 4½@6. Fair to fancy comb, 9½@16. Beeswax has not recovered from the blow it received in the spring on discovering so much adulterated. Buyers are suspicious, and buy sparingly. We quote 22@25.

WM. A. SELSER,

Aug. 20. No. 10 Vine St., Philadelphia, Pa.

MILWAUKEE.—Honey.—The condition of this market is favorable for shippers. The stock of old crop is being steadily reduced, and the supply is now small, especially extracted, and we can now handle liberal shipments, and on section honey we can now quote choice 1-lb. sections, 15@16; good, 13@14; dark, 8@10; extracted, in pails or kegs, white, 6½@7; dark, 5@5½. Beeswax, 22@25.

A. V. BISHOP & Co.,

Aug. 24. Milwaukee, Wis.

DETROIT.—Honey.—Best white comb honey in fair demand at 13@14; no dark offered. Extracted, 6@7. Beeswax, 24@25.

M. H. HUNT,

Aug. 19.

Bell Branch, Mich.

ALFALFA HONEY. very white, thick, and rich. Two 60-lb. cans at 7c. Same, partly from cleome (tinted), 6c. Samples, 8c.

OLIVER FOSTER, Las Animas, Col.

FOR SALE.—Two carloads of prime mountain comb honey in 24-lb. glass-front shipping-cases; labeled goods, full weight, 1-lb sections; 10 cts. per lb. on the tracks here. A. B. MELLEEN, Acton, Cal.

FOR SALE.—White comb honey, 14 and 16c. on board cars.

G. R. ROUTZAHN, Menallen, Pa.

ALFALFA IN ARIZONA.—We will sell you alfalfa honey F. O. B. Phoenix at 4½c in 1000-lb. lots or more. Less than 1000 lbs. at 5c in five-gallon cans. Car lots a specialty.

J. P. IVY,

Secretary Bee-keepers' Association,
Phoenix, Maricopa Co., Arizona.

Wants or Exchange Department.

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.

J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 26-in. planer, power scroll saw, all iron; tenoner, and mortiser, for portable sawmill, or other wood-working machinery. Will give a bargain for cash.

Geo. RALL, Frenchville, Trempe Co., Wis.

WANTED.—To exchange foundation-mills and honey-extractors for honey or wax.

I. J. STRINGHAM, 105 Park Place, New York.

WANTED.—To buy 2 tons extracted white-clover honey, in 60 lb. tins.

GEO. G. WILLARD,

270 Pearl St., Cleveland, O.

WANTED.—To exchange latest improved Marvel magic lantern, best quality (cost \$45), also 100 choice views, for honey, beeswax, or offers.

E. E. SLINGERLAND, Troy, Pa.

WANTED.—To exchange bees in new 8-frame L. hives for a ladies' bicycle.

eitf

W. D. SOPER, Jackson, Mich.

WANTED.—To exchange about 4 bushels of Egyptian onion-sets, strawberry, blackberry, and raspberry-plants, for foundation, sections, or offers.

D. NOBLE, Clintonville, Wis.

WANTED.—To correspond with all who have honey to sell.

F. N. JOHNSON,

Box 137. Knoxville, Knox Co., Ill.

WANTED.—To exchange English Beagle hound female, in whelp, for repeating-rifle, extracted honey, or offers.

D. S. HALL, So. Cabot, Vt.

WANTED.—To exchange power-saw table and saws, mandrel for Barnes' saw, for bees, supplies, or offers.

ROBERT B. GEDYE, LaSalle, Ill.

WANTED.—To exchange pure-bred short-horn cattle, either cows or bulls, for clover or bass-wood honey. If you want good cattle, write me for prices.

CALVIN LOVETT, Otsego, Mich.

WANTED.—To exchange \$25 kodak for typewriter, watch, or offers.

EARL WALKER,

Box 316, New Albany, Ind.

WANTED.—To correspond with any one wanting first-class St. Bernard pup. I want honey, bicycle, shot-gun, and photographic outfit.

SCOTT BRILLHART, Millwood, Knox Co., Ohio.

WANTED.—To exchange fine Italian bees in Dove-tailed hives; tested and untested queens, golden or leather colored, for good bicycle, 22-caliber repeating rifle (Winchester or Colt's), camera, watch, or offers.

W. F. STUART, Box 415, Ottawa, Kan.

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CONVENTION NOTICES

There will be a meeting of the Southeastern Bee-keepers' Association in Fort Scott, Kan., Sept. 19th, 1895. All are cordially invited.
J. C. BALCH, Sec., Bronson, Kan.

The Southwestern Wisconsin Bee-keepers' Association will hold its next meeting at Platteville, Wis., Oct. 8th and 9th, 1895. Come all. Don't get discouraged, even if we haven't got a crop of honey. We shall have a good time at Platteville just the same. Bring your wives and daughters with you. Many interesting subjects will be discussed.

M. M. RICE, Sec., Boscobel, Wis.



A NEW PAIR FOR HONEY.

We have recently been investigating Record's tight butter-package for honey, and it seems to be most desirable.



In cut No. 1 we show the tin package with the tight cover lifted, representing the groove near the top of the package into which the lugs shown on the cover lock themselves when sprung into the package, instantly sealing it tight.



We also show the little wire lever thrown out which is used to pry the lever out of the seat

when it is desired to open the package. It will be readily understood that the package may be opened and closed as often as desired, always shutting and locking itself tight. If it is desired to be absolutely water and air tight a small rubber band is used around the groove of the cover, forming a gasket, but for ordinary purposes this band is not necessary.

These pails are made in sizes to hold 1, 2, 3, 5, 10, and 20 lbs. of butter or lard. The honey capacity is approximately 1½, 3, 4½, 7½, 15, and 30 pounds. Cans without bails, of still larger capacity, are made; but for shipping honey in retail packages the four smaller sizes would be the ones used. We will furnish these pails at following prices:

No. 1, holding 1½ lbs. honey, 6c. each; 55c. for 10; \$5.00 per 100.

No. 2, holding 3 lbs. honey, 7c. each; 65c. for 10; \$6.00 per 100.

No. 3, holding 4½ lbs. honey, 8c. each; 75c. for 10; \$7.00 per 100.

No. 5, holding 7½ lbs. honey, 10c. each; 90c. for 10; \$9.00 per 100.

No. 10, holding 15 lbs. honey, 15c. each; \$1.35 for 10; \$12.50 per 100.

SHIPPING-CASES.

The letter from S. T. Fish & Co., in another column, calls attention in a practical way to the importance of neat and attractive cases. We have a later letter from Fish & Co., inclosing one from the shipper of the lot of honey which sold on arrival at 16 cts. In this letter the shipper says the cases came from The A. I. Root Co. We have been wondering why we get more orders every year for shipping-cases. The only reason we can assign is, that, at the very reasonable price we ask, we furnish a very neat and attractive case. See our catalog, for prices. Right here I might mention the fact that the car of alfalfa honey we received last fall was put partly in our cases, but mostly in cases made at a local mill. The cases were not tight, nor the honey protected with paper as we recommend in our catalog. As a consequence, the sand and coal dust injured the looks of the honey, and the selling price as well. If you have a nice article of honey, do not sacrifice two or three cents in the selling price by not putting it up in the most attractive package, and properly graded.

HONEY MARKET.

We are having a fairly good demand for honey, but look for a better trade, this month and later, when fresh fruit is not quite so plentiful. We offer fancy comb honey in 1-lb. sections, 12 and 24 lb. cases, at 16c. In crates of about 200 lbs., 15c. We have a lot of very fine extracted clover and basswood honey, in 60-lb. cans, which we sell at 9c per lb. for a single can; 8½c by the case of 2 cans; 2 cases or over, 8c per lb. We offer California sage honey at ½c per lb. less than these prices. This is very fine white honey, which does not candy or granulate. Samples mailed for 5c to cover cost of package, or free to intending purchasers.

SECOND-QUALITY A B C BOOKS.

In finishing up the last edition of the A B C of Bee Culture, before the new edition just finished, we find still quite a number that we classed second-quality, and offer at 65 cts. postpaid to close out. They are in cloth binding, and scarcely distinguishable from the firsts. A number of those who have received one from our notice of May 15 wrote us that they could not see, in looking them over, why we should class them as seconds. We have about 60 of the books; and if they go off as rapidly as they did in answer to our first notice they will last scarcely three weeks. Who wants one?

Black and Hybrid Queens For Sale.

Hybrids for 20 cts.; mismated for 30 cts.

C. G. FENN, Washington, Litchfield Co., Conn.

18 hybrid queens, a few of them mismated, reared this summer from daughters of one of Doolittle's selected queens; all good layers; 25 cts. each; or 5 for \$1.00.
J. P. F. SMITH, Liberty, Mo.

The Convention

fill orders just as well and promptly as I can. "By return mail" will be the motto, just the same, whether I am at home or not. Single queen, \$1.00; six for \$5.00. One queen and *Review*, \$1.50; one queen and the book, "Advanced Bee Culture," \$1.25; queen, book, and *Review*, \$2.10. Remember that the queens are bright, young tested queens, and strictly first-class in every respect.

W. Z. HUTCHINSON, Flint, Michigan.

Five Assistant Bee-Editors

Please cut out this whole ad. and sign and mail it to—
56 Fifth Ave., Chicago, Ill.

Please send to me the AMERICAN BEE JOURNAL for 3 months (13 numbers). At the end of that time I will send \$1.00 for a year's subscription, or 25 cts. in case I decide to discontinue. You will please address me thus:



Sample Copy Mailed Free!

Name.....

Post-Office.....

State.....

Proof Beyond Doubt.

I opened several hives. He had no veil; was in the apiary $\frac{1}{2}$ of an hour; was not bothered once. Try them. Untested guaranteed queens, 75c. Send for wholesale price list.

A customer, looking over my 400 hives in home apiary, said, "Where are your bees? Mine were flying all around thick this morning." I said, "Just stop; look down at any hive." He was amazed. They were just pouring in thick with their heavy loads. This proves two things—they can't be excelled as workers, and quiet.

Wm. A. Selser,
Wyncote, Pa.

A Full Line of Popular SUPPLIES

Always on hand.

1 lb. sq. flint jars, \$5.00 a gross, sent from this city. Untested queens, now ready, 75 cts. After July 10th, 3-frame nuclei and Italian queen, \$2.50. Discount on quantities. Catalog free.

I. J. STRINGHAM,
105 Park Place, New York.

The Bottom is Out!

For the next 60 days we will sell warranted purely mated queens at 55 cents each; six, \$3.00; tested, 75 cts. each; six, \$4.00. All queens sent by return mail. Satisfaction guaranteed. Address
LEININGER BROS.,
Ft. Jennings, Ohio.

World's Fair Medal

Awarded my *Foundation*. Send for *free samples*. Dealers, write for wholesale prices. Root's new *Polished Sections* and other goods at his prices. *Free Illustrated Price List* of every thing needed in the apiary. *M. H. Hunt.*
Bell Branch, Mich.

SECTIONS, BEE-HIVES, SHIPPING-CASES

We make a specialty of these goods, and defy competition in quality, workmanship, and prices.

Write for free, illustrated catalog and price list.

G. B. Lewis Co., Watertown, Wis.

In responding to these advertisements mention this paper.

Dovetailed Hives.

Sections, Extractors, Smokers, and every thing a Bee-keeper wants. *Honest Goods at Close Honest Prices.* 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

IMPORTED QUEENS, \$3.25; untested, 50 cts. W. C. FRAZIER, Atlantic, Iowa.

MUTH'S HONEY-EXTRACTOR, SQUARE GLASS HONEY-JARS.

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "Practical Hints" will be mailed for 10c in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.

Headquarters in Missouri For Root's Goods.
Can supply you with all the fixtures used in an apiary. Best goods at lowest prices. Catalog free.
JNO. NEBEL & SON, High Hill, Mo.

If Tons of Honey,

Pleased Customers, and Increasing Trade is a criterion, then my queens are satisfactory. *Warranted* purely mated queens from 5-banded strain, 75c; six for \$4.00; dozen, \$7.50. Safe arrival and satisfaction guaranteed. Send for free circular.

J. B. CASE, Port Orange, Vol. Co., Fla.



Vol. XXIII.

SEPT. 1, 1895.

No. 17.

STRAY STRAWS FROM DR. C. C. MILLER.

CANADIAN reports, as well as reports from this side the line, indicate a short crop.

KEEP UP the discussion about hives. [Yes, but I must have more votes than this to keep it up.—ED.]

KEEP OUT of GLEANINGS the silver discussion. [Quite right: and all other political questions.—ED.]

SUPERSEDING queens, when left to the bees, is usually done in May, says C. W. Post in *C. B. J.* I think my bees do most of that in the fall.

HUTCHINSON says, as a rule a honey-board need not come off oftener than once in three years. He also thinks it is needless to number hives.

AFTER USING divisible brood-chambers for years, Hutchinson says he has never seen any evidence that the queen is likely to neglect one section.

"MORE GOOD PEOPLE in the world than we sometimes suppose," is what I said, and Somnambulist warns me, "Look out, doctor, for mud-balls from the anti-mutual battery."

SQUEEZING and wringing still bring a good lot of juice out of the hive discussion. As long as that is the case, it is well to keep it up. [Yes, I rather think so; but I want our readers to indicate their pleasure.—ED.]

DEUTSCHE IMKER, a German bee-journal, contains the information that, of the 3500 varieties of plants in that region, only 60 yield both honey and pollen; 900 yield honey only; 250 only pollen, and 130 propolis.

A COLORADO MAN thinks I'd better quit trying to get honey from straws, and come out there where I can get it from alfalfa. Perhaps so; but if I can get the alfalfa to come here, that may be cheaper than to move.

MOVING BEES. Here's a plan for short distances, given by H. E. Hill in *American Bee-*

keeper: Put three frames of brood with queen and most of the bees on new location. In six days move the rest, cutting out queen-cells.

"WE'VE ALWAYS to keep in view the fact that next year's greatest problem may prove to be the caring for an unusual crop," says Somnambulist, in *Progressive*. I've kept that in view so long, Sommy, that my eyes begin to feel strained.

THE QUEEN of a colony that has wintered badly is thereby injured herself, and is better replaced, says C. W. Post, in *C. B. J.* Such a colony is usually hard to pull into shape; but I never before thought of blaming the queen. He may be right.

CARNIOLANS are said to be hard to distinguish from blacks. Some say it's easy, but I don't remember seeing in print *how* to tell them apart. [It simply can't be told on paper. There is a difference, but you must *learn* to know it by actual comparison.—ED.]

THE *American Bee-keeper* reports that S. M. Keeler gets combs built down to bottom-bar by using bottom-bars of $\frac{3}{32}$ wire. [I have no doubt of it. They will do more; they will build clear past them on to the next set of frames below. They did that with some of our three-eighths-square wood bars.—ED.]

LAYING WORKERS sometimes make just as nice and smooth work as queens, filling worker-cells regularly with one egg in a cell, with no difference that I could detect. But I think it is generally if not always in cases where no drone-cells are present, and generally a queen-cell with two or more eggs will tell the story.

THE COST of honey-boards or thick top-bars doesn't figure either way, you say on p. 636. Beg pardon, but it does. A honey-board costs several times as much as the extra thickness of top-bars. My honey-boards don't last like top-bars, and they cost me a good deal more than a cent a year. [Perhaps you are right.—ED.]

WOOD-BASE FOUNDATION, says *Canadian Bee Journal*, was used by D. A. Jones 15 years ago. All was lovely while the bees were busy

working, and rearing brood; but when out of work they got into mischief and set to work to eat away and remove the wood. [This was just our experience about that time too.—ED.]

DO BIG TREES and big honey crops go together? California has both, and the enormous yields of honey in Australia come from a land which invites California to a contest as to big trees. The Sydney *Evening News* contains accounts of trees having a circumference of 40, 50, and 60 feet, and one tree has a girth of 136 feet at 5 feet from the ground.

EXPERIMENTER TAYLOR says in *Review* that, usually, the royal jelly deposited in a cell amounts to about half a common thimbleful. Haven't the women in that region rather small hands? [The women in your locality must have big hands. (Beg pardon.) I should have said Taylor's statement was about right for here.—ED.]

MELILOTUS ALBA is considered only a weed in the Northwest; but in the South it is prized as one of our most valuable forage crops. . . . Mowed before the plant becomes too large and woody, the quality of the hay is first-class, and in nutritive quality equal to any of the clover family."—*E. Montgomery, in Agricultural Epitomist.*

QUOTH YE EDITOR, on p. 620, "There is a method, and it is practical, to control fertilization. See article by James Wood." With feverish haste I found the place, then a nervous shock, a collapse. Not a thing new in it. Not a thing that ever was or ever will be of value except to a very few isolated individuals. [I knew it was not new; but I don't agree regarding its limited application.—ED.]

"USELESS CONSUMERS" is a term commonly applied to bees reared after the honey-harvest commences. S. E. Miller, in *Progressive*, raises a protest against the term being thus used. I've been looking for that sort of protest before. [What better term can you suggest that conveys the idea so well? I don't think of any. It is true they may not *always* be "useless," but if the rearing of them could be deferred a little later it would be better.—ED.]

SOME 420 COLONIES are kept in the home apiary of C. W. Post, says *Canadian Bee Journal*. I supposed such numbers could be kept in one apiary only in the far South. Now they're going to commence doing that sort of thing in Canada, so as to make us poor mortals in the middle feel we're nobody. [But wouldn't Post's bees do far better if they were divided into two yards—one yard two or three miles away?—ED.]

I WAS SURPRISED lately to see, within a few miles of home, a field thickly covered with hay-cocks, showing a heavy yield in this year when the hay-crop is very light. Coming closer I found it was alfalfa three years old. I didn't suppose alfalfa would grow here; but there it

was, and the second crop had been taken this year. I saw no bees on it. [There is a fine field of alfalfa not a great way from us. We didn't suppose it would grow as well as it does.—ED.]

R. F. HOLTERMANN says lindens planted in the streets are rarely of benefit to bee-keepers, but must be in the woods to be of much value. I wish that might be numerously contradicted. [That is not true around Medina, nor in any other place I have been in the United States during the bloom. I have a row of trees in front of my house that are the equal of any trees in the woods for the roar of bees at the proper season of the year. Of course, bass-woods do better in the woods; but that those along the streets are rarely of benefit to bee-keepers is not true with us.—ED.]

"A REVELATION" is what Somnambulist calls the statement in GLEANINGS, that the majority of bee-keepers put their sections on the market without scraping. That may be a good name for the statement, but a good name for the thing itself is "abominable carelessness." [Many times a statement may appear to be a revelation, but that does not signify that it is untrue. Bee keepers who are in the habit of always scraping their sections are apt to think all others do. You remember the Frenchman who thought because he always "parlez-vous-ed français" therefore all the rest of the world did.—ED.]



A VISIT AT B. TAYLOR'S.

THE MAN, HIS HIVES, FIXTURES, ETC.

By Harry Lathrop.

Off-years are good for some things; and one is, that they allow a bee-keeper leisure time to visit other apiaries, and broaden his knowledge of men and methods. On the 19th of June I started for the Northwest to visit the home and apiary of B. Taylor, near Forestville, Minn. After a pleasant ride down the Wisconsin Valley, crossing the Mississippi at North McGregor, and on through Northern Iowa, I arrived at Wykoff Station, where I was met by Mr. Taylor, according to previous arrangement, and taken out to his beautiful home, 8 miles distant. Although Southern Minnesota is in the main a prairie country, the Taylor apiary is located in a wooded section, with narrow valleys between high limestone bluffs. This part of Minnesota produces about all the honey-plants common to the Northwest, including an abundance of basswood and white clover. To be concise, there were three things in which I was espe-

cially interested—the field, the man, and, the work.

The location has been partly described. It is a land of beautiful valleys traversed by cool spring brooks, the natural home of the brook trout, and abounding in cool leafy woods in which the thrifty basswoods are plentifully distributed. The Taylor apiary is beautifully situated in one of these valleys, on sloping ground at the foot of the bluff, where it catches the first beams of the morning sun, and is naturally sheltered from winds.

Now as to the man and his methods. Mr. Taylor is more than a bee-keeper. He is a fine mechanic and an inventor. He has a nice shop containing machinery (constructed by himself) for making every conceivable appliance used



B. TAYLOR.

in bee-keeping. All his work, whether it be building a house or a bee-feeder, is thorough and exact. No time is lost in his apiary through having fixtures that won't fit. I did not see an imperfect joint nor a warped cover on the place; and when Bro. Taylor makes any claim or describes any appliance in the bee-journals you may be sure it is just as he says it is. My expectations were fully met. He informed me that each appliance he uses was adopted after many experiments, until finally he has selected what he considers the best after many practical tests, and he has the things themselves to show each step by which he has arrived at present conclusions. Having time, and proper tools and machinery, this was much easier for him to do than it would be for many. Very few bee-keepers can attempt to do what he has done in the mechanical department, but must adopt, as best they can, the methods of others.

Mr. Taylor has never made an effort to establish a supply business. He seems to have little or no desire to do a large business, therefore his well-equipped shop and beautiful machinery stand idle a large part of the time.

The hive adopted is the same in nearly every respect as his shallow-depth sectional hives, except in the depth of the frame. The one he prefers is only a little shallower than the ordinary Langstroth frame. He prefers what would be considered a small hive, and gets very large swarms from them too, as I can testify from what I saw. I was fortunate in being there just in the swarming-season. In honey production he can show a record above the average; but that may be, and probably is, largely due to a good location. He is not so particular as some in regard to pure races of bees; but his colonies show the mark of health and vigor—the result, evidently, of properly bred queens.

I was much interested in the following: His house-apiary, bee-cellar, readily movable self-spacing frames, interchangeable hive-body, bee-escape, section-holders, solar wax-extractor, feeders, and swarm-catcher. The latter appears to be his pet hobby at present; but for myself I am so well pleased with my method of working with clipped queens that I am not much interested in swarm-catchers. His is intended to be placed on the hive the moment you notice the swarm beginning to come off.

One thing I saw was quite instructive. I was shown a lot of hives containing nice clean combs of white honey from which the bees had died during the past winter, although they had been properly cared for. The cause assigned was that, on account of dry weather last fall, they had gone into winter quarters with old bees instead of young ones. The result was, they died off from old age just as we all shall if we don't die sooner from some other cause.

Mr. Taylor is assisted in his work by his youngest son Jewell, whom he expects to succeed him in that work—his other son, living near by, preferring fruit culture.

Mr. Taylor is an expert in gardening and fruit-growing, and gave me a few valuable hints along that line. I was told that, some years ago, he tested one hundred varieties of native wild plums on his grounds. These were brought from different parts of the Northwest. Out of this number he has selected one that he considers very superior. How few would take the time, and have patience, to conduct such an experiment! After all, where do you find more all-around handy men than among the bee-keepers?

In closing, I will say that I was so kindly treated during my stay, and enjoyed myself so well, that I feel just as though I wanted to go again some time.

Browntown, Wis.

CRIMSON CLOVER.

"BY LONG ODDS THE BEST BEE-PLANT;"
HONEY VERY FINE; WHEN TO SOW;
GREATEST RESTORATIVE
OF THE SOIL.

By A. F. Ames.

Friend Root:—I see you want information about crimson clover. I have had but one year's experience with it as a bee-plant; but this year it was by long odds the best bee-plant here—much better than white clover ever is here in the South. It blooms very early, so one must have bees strong in time. The honey is very fine—not quite so white as white clover. It is the greatest, soil-renovator in the world, and will succeed where red will not. It should never be sown in the spring—at least in the South—but early enough in the fall to make a good growth to carry it through the winter. Here, although late sowing will winter all right, it will make a very light crop, as it must make a good growth in the fall and winter. If left to ripen it will reseed itself. The best time to cut for hay or to turn under is when part of the heads are brown. If sown so early that there is danger of blooming, pasture it. I have no fears of mine, sown the first week in July, blooming this season. It will endure as much cold as red, or perhaps more, and make over twice the growth in the same time.

Claremont, Va., Aug. 6.

CRIMSON CLOVER "OUT OF SIGHT," YIELDING LARGEST AMOUNT OF THE FINEST HONEY.

This clover was first introduced in Virginia about fifteen years ago; but it has not been largely grown in this country for more than four or five years. It can be sown in this State in August, September, or early in October, and is in bloom the latter part of April. Farmers grow it largely in this county for early green feed, and sell large quantities in Richmond at 10 cents per hamper. We generally sow ours in the

corn after cultivating the last time, seeding about 10 or 15 lbs. per acre. As a land-improver it can not be beat; and as for honey it is simply "out of sight," yielding a large amount, of the finest quality, as you will see by the sample I will mail you soon. It is not very fine



CRIMSON CLOVER.

Re-engraved from a cut in Burpee & Co.'s catalog.

for dry hay, as it is inclined to be rather dry and woody. Like all other crops it does best on good land, although I think it will do a great deal better than common red clover on poor soil.

Reports are rather encouraging this year throughout the State, my bees giving me about 35 or 40 lbs. of comb honey per colony.

Richmond, Va., Aug. 10. F. H. JEWHRST.

CRIMSON CLOVER; HOW INTRODUCED IN THIS COUNTRY; ITS GREAT BEAUTY, ETC.

Crimson clover was introduced in this country several years ago by the late Dr. Haralline. Being a great lover of flowers, he was attracted to the plant by its great beauty, which is hardly exceeded by the finest flower that adorns yard or garden. The beautiful deep green, which may be seen all through the winter, when not entirely covered with snow, grows deeper and brighter as spring advances, until early in May, when the flowers appear, and the field changes from a deep green to a brilliant crimson, making a sight to behold; and, remember, at first its value as a forage-plant was not understood, and as a soil-restorative it was unknown; and the progress of the plant at first was rather slow. Every one admired its beauty, and numerous plots were sown for ornamental purposes; but years elapsed before farmers awoke to its value as a regular rotation crop.

Crimson clover has now been successfully grown in all parts of the Union, and is no longer an experimental crop. It is good for hay, and will yield two to three tons per acre of the finest quality. It is valuable for seed, which it produces in large quantity; is good for fall and early spring pasture; it is also an excellent honey-plant, and makes a good bee-pasture; but its greatest value is in its ability to store up plant-food, and at the same time send down deep feeding-roots in the subsoil, and bring to the surface elements of fertility that would otherwise be lost.

Crimson clover is an annual, and must be sown in its proper season. This extends from the first of August until the last of October. About 10 quarts of seed are required to sow an acre. If any of the readers of GLEANINGS would like to test a sample of crimson clover I will send a small sample by mail for a couple of stamps for postage. L. STAPLES.

Grand Rapids, Mich.

[All right, friend S.; but you may be swamped with orders; so, look out.—ED.]

A FINE GROWTH OF CRIMSON CLOVER; THREE WEEKS AHEAD OF RED; WORTH TO THE SOIL MORE THAN 30 LOADS OF MANURE.

I sowed one-third acre of crimson clover on good onion ground Aug. 20, 1894, and it made a

fine growth, and kept green until February, although the cold had been to 20° below zero. In February the top died down, but began to grow nicely in March, and was three weeks ahead of red clover on the same kind of ground. May 1st I had it plowed under, when it was 20 inches high, and there was such a heavy growth they had to use a chain to turn it under. I planted the ground to muskmelons, and the ground kept moist except about two inches on top, through the long drouth of six weeks in May and June. I think it was worth more than 30 loads of manure. I also sowed my half-acre vineyard, and it bloomed in May, and the bees worked on it lively—more than on white clover; but I can't say as to amount or quality of honey. It made fine pasture for chickens. I consider it the greatest plant ever introduced, if used between other crops to improve land by retaining its fertility and adding nitrogen. JOHN C. GILLILAND.

Bloomfield, Ind., Aug. 13.

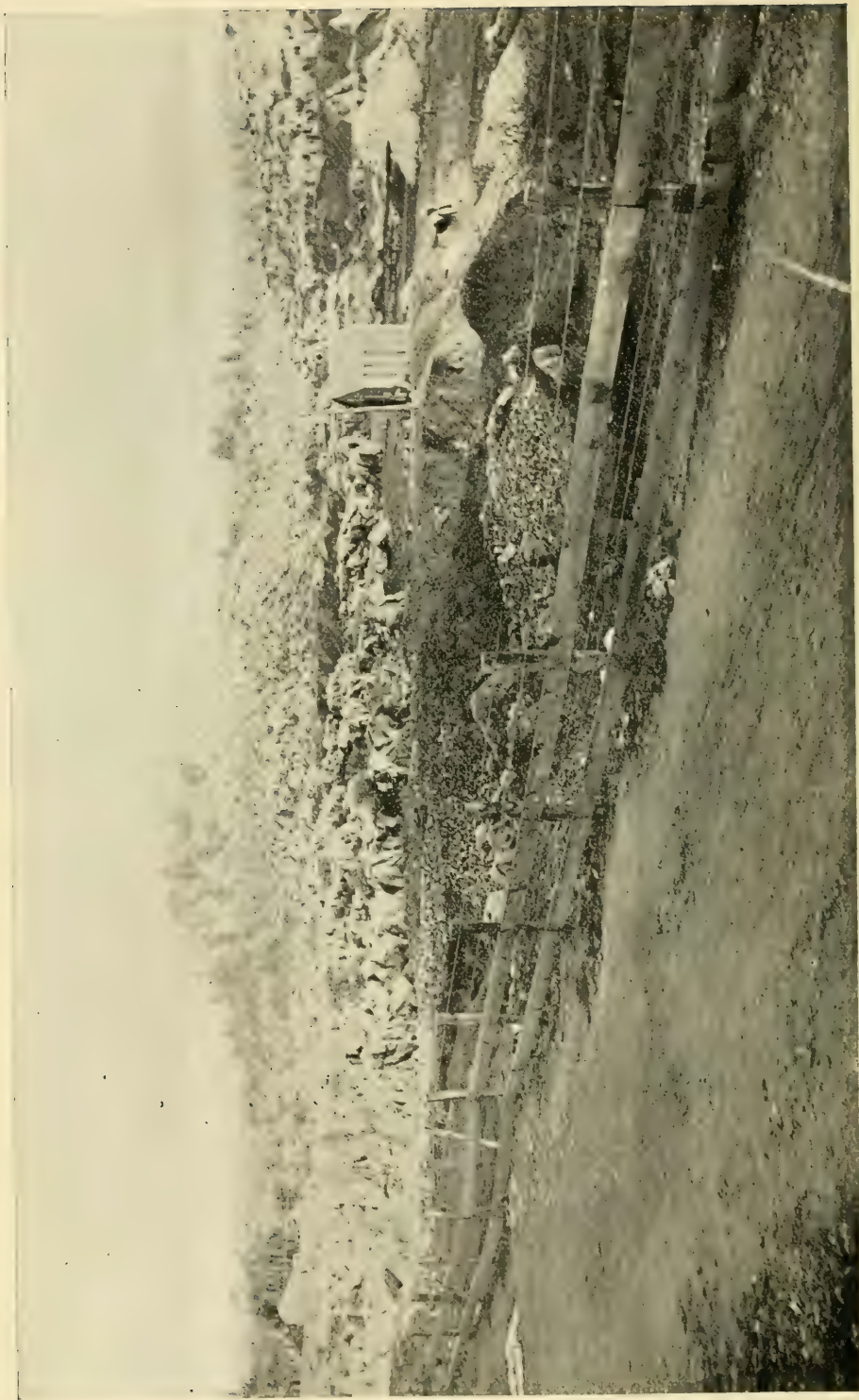
RAMBLE NO. 139.

IN SELMA.

Although we left Murphy suddenly we did not forget to bid adieu to our good friends the Schaeffles. They all, from the head to the foot of the family, made our sojourn enjoyable, and we had reason to remember them in a substantial manner for many days. A pail of that blue tarweed honey, a bag of apples, and one of Mrs. Schaeffle's excellent pies, were all tucked into our lunch department. May the shadows of the Schaeffles never grow less.

Calaveras Co. is so full of interesting natural features that Mr. Wilder and I felt that we could have spent many more days there with profit; but southward was now our watchword. Storm-clouds began to gather in the northern horizon, and we longed for the balmy skies of our southland.

The Golden Nugget apiary, as mentioned in the last ramble, is owned and operated by Mr. Aliska. Here we find 200 colonies, the greater portion of them in a shallow hive. Before visiting this apiary I had learned that the brood-chamber and the super were both filled with 4¼x4¼ sections; but upon examining a few of them I found the sections in the super in wide frames, and the brood-combs were built from these same brood-frames down into the brood-chamber; and the brood-comb was removed every time a wide frame was removed with its sections. Mr. Aliska was not there to explain matters; for in the early morning his partner and himself and Ah Hin, the Chinaman, went to work with wheelbarrow, shovels, and picks, in their gold-mines, where the greater portion of their time was spent. Mr. Aliska, during the honey season, left the gold-mine and secured gold through the medium of his hives. Comb



BLASTED ROCKS IN THE GOLD REGIONS OF CALIFORNIA.

honey was the product, and the honey flora here was much the same as at Mr. Schaeffle's.

I found other bee-keepers in this same neighborhood. About a mile from Aliska's an old decrepit man and his wife had an apiary which they managed upon the old plan; and in referring to Mr. Aliska they said that he had recently come in with his new-fangled notions; "but them ar little section fixin's I don't believe in. I can git jest as much honey as he kin, any year; besides," said the old man, "I don't think much of them ar' miners. Wy! if they thought thar'd be a leetle gold under this yer house they'd dig right under it in a minute, an' they claim they've got a right to by law. It's a fact, stranger; one of my neighbors has gone rackin crazy trying to keep the miners from diggin' up his whole farm; and while he is sent off to the 'sylum his old wife hangs on to the farm with jeopardy."

Mr. Aliska was not the kind of man to dig up his neighbor's farms and feelings in that way, but he was at work in a tunnel trying to strike a "pocket," as it is termed, and a great deal of scientific reasoning and digging is practiced in trying to find these pockets. Mr. Aliska stated to us that he once struck such a pocket, and panned from one pan of dirt \$1500 in gold nuggets; and to find another pocket he might spend twice that amount. So goes the miner's life, lived on with the hope ever before him of great and sudden wealth. In the long run a steady devotion to the production of honey would probably bring in more nuggets of gold than the pick and the shovel.

This portion of country we now pass through shows more and more the wear and tear of placer mining. Where once were fertile tracts of land there is now nothing but piles of coarse debris and acres of ill-shaped pointed rocks. The fine earth has all been washed away, and thousands of acres of such torn surface are found in Calaveras and Tuolumne Counties.

On our journey we cross the famous Stanislaus River; Sham's, and various other flats; Jimtown, and Poverty Flat, all made more or less famous by the writings of Bret Harte, whose home, as well as that of Mark Twain, was formerly in Angel's Camp.

We gradually get beyond the mining lands, and drop, as it were, from hill to hill until we get again into the great San Joaquin Valley; and after three days' drive from Mr. Schaeffle's we are alongside the S. P. R. R. at Merced. From this point we have over 300 miles to traverse ere we get under our own climbing rose-bush and pepper-tree.

Another three days we traveled through an extensive grain and grazing country, and with it were scores of square miles of unimproved and barren lands whereon the wild goose quawked, the turkey-buzzard foraged, and the traveler accelerated his pace. The desert ap-

pearance at this season of the year was enhanced by seeing now and then the bleaching bones of some weary bovine that had given up the hopeless pursuit of forage, and had died for the want of it. The honey-bee, if located here, would find as little forage as the cattle; and it occurred to me that, while so many are talking about rearing queens upon lonely islands, here in the midst of these great plains would be a fine place to mate queens with special drones. The little queen-rearing apiary could be established for a while upon some large cattle ranch. A little sugar to stimulate, and not another bee within 20 miles! who could desire a better place?

We were pleased to reach Selma, in Central California, on Saturday evening. Here we again strike a honey-producing country and a large number of bee-keepers. Mr. J. C. McCubbin, with whom I had a pen-and-paper acquaintance, lived in the edge of the town, and upon a vacant lot near his residence we picketed our horses and pitched our tent, and sojourned over Sunday. It is good for brethren to dwell together in unity, and attend church on Sunday.

I had a sort of vague idea that our friend was a bachelor; but the idea was dispelled as soon as I looked inside the dwelling. If I must in fairness say it, no bachelor could ever keep a house in such tidy order as we found that house. A bachelor always forgets to put things back in their places; and if he does, his fingers are so clumsy that they knock over several other things; then a bachelor generally has a horror of sweeping down cobwebs, and they will dangle from the ceiling; but a good housewife never forgets these things.

We found it so in the McCubbin mansion, for there was neatness and order, and then there was a little cherub of a baby, just old enough to double up its fists and make mouths at us.

The baby was quiet enough to allow us to talk bees until near midnight, and we had something near to inspire bee-lore, for Mr. McCubbin was getting his honey ready for market, and had several tons of nice comb honey nicely graded, crated, and stored in his house.

In this portion of California the yield is largely from alfalfa, and at the time of our visit (Nov. 24) the bee-keepers around Selma were getting a fair crop of honey ready for market, while in nearly all of Southern California beemen were pouring sugar syrup into their hives.

The yields from alfalfa are not so great as from sage; but, having a more uniform yield every year, the bee-keepers make fully as much money out of their bees, in the long run, as they do further south—at least, I will make that statement and let it stand until it is proved otherwise.

While the leading honey-plant around Selma is alfalfa, on the "West Side," as they term it,

the sages yield an abundant honey crop; and cases were cited where 500 colonies had given 65 tons of extracted honey; and apiaries with a less number of colonies, yields in proportion.

All the way up the San Joaquin Valley we hear much of the "West Side," and that means the west side of the valley, where it is bounded by the Coast Range of mountains. The east slope of this range seems to have an abundance of sage, while the western slope toward the Pacific, over which we traveled earlier in the season, has but a small acreage of it.

The west side, as we go up the center valley, has a distance varying from 20 to 60 miles.

SALISBURY'S HOUSE-APIARY A SUCCESS.

HOW TO CONSTRUCT ONE.

By F. A. Salisbury.

In the fall of 1893 I built my first house-apiary, and liked it so well during the season of 1894 that I built another out about three miles, near Split Rock. The first view shows how the last one looks from the outside. The whole is on a stone foundation, with five win-

width and runs from the cornice to the sill. First at each end is red; then white; then blue; then yellow; then green.

In the center there is a room 9 feet 4 in. wide, and 12 feet long, the outside of which is painted white. In the center of each color is a window without glass, but with doors 14x20 in., that can be fastened. The hinges used are blind-hinges, and the catches are blind-catches. Along the ridge there is an opening running nearly the whole length of the building, 12 in. wide. Over this is built a roof. When shingled and sided up, the cupola has an opening on each side at the top, of 3 in., running the whole length. In each end of the building there is a door. The entrances are cut through the siding $\frac{1}{2}$ x8 in., and an alighting-board 2x12 in. is nailed just under the opening, even with it.

The second view is an inside one, looking from the center toward one end. On each side you will notice there are two shelves, the bottom one being 8 in. from the floor, and the upper one 53. Doors are placed 15 in. from the shelves. On the shelves the hives are placed 2 feet apart.

The bottom of the hives or shelves proper are



EXTERIOR VIEW OF SALISBURY'S HOUSE-APIARY.

dows in it for ventilation, 6x18 inches. On top of the wall is embedded in the mortar a 2x10 inch; on top of this are placed the joists, 2x10, two feet apart. Beginning at each end, the second one is to be 28 in. from the end to center of stud. The rest to be 24 inches from center to center.

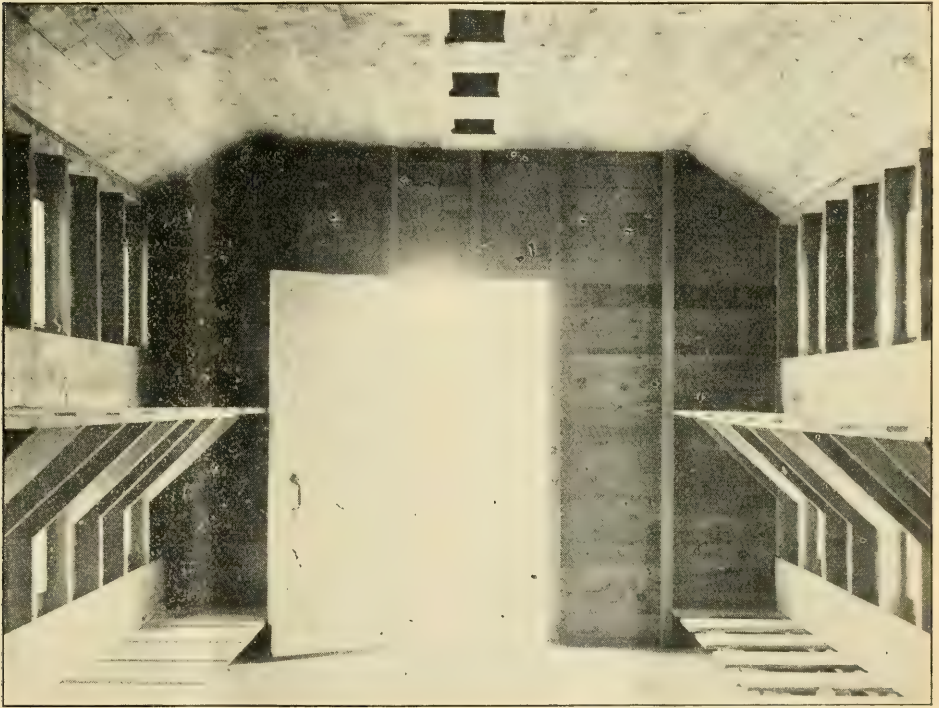
Begin the laying of the floor from each side, laying about two boards; then put up the studs; on top of them the plate, and then the rafters. Studs are placed over the joists, and rafters over the studs. The plate is made of two 2x4-inch studding. Use cove ceiling for the siding. It is painted in five colors. Beginning at each end, each color takes six feet in

so made that the center of each hive is over a space that is open (see the shelf at the right on the bottom). In this space can be placed a board, making a tight bottom; or during the summer months the space can be filled with a frame covered with wire cloth. By using the wire cloth at the bottom the bees are much more comfortable in hot weather, and I think it has a tendency to prevent swarming. During the season of 1894 we had only 11 colonies swarm from 101; this season, only 1 from 114. One would think that the bees would proceed to fill up the wire cloth with propolis; but we have had the screen in use now two seasons, and they are as clean now as when first put

under. We thought they would have to be cleaned at the end of each season, but were pleased to find that they would not. On the left-hand side you will notice that boards are in the open space; these are for use in winter, fall, and spring.

During the honey season we use the wire cloth in its place. By looking closely you will see the grooves in the shelves alongside of each opening; these are for feeding. They are $\frac{5}{8}$ of an inch deep, and $\frac{3}{4}$ wide. Before using they are varnished with shellac varnish to keep them from leaking, and absorbing the feed, thus keeping them tight, sweet, and clean. The hives are placed on the shelves with the

hive; and with two-quart cans there is a capacity of 6 lbs. at each feed. We have found that one can to each colony is sufficient in ordinary cases. Two cans can be used over each groove, and this will give a capacity of 12 lbs. to each colony. It will be much better to have the shelves gotten out by machinery; and if you think of building, I would give the order to the A. I. Root Co. Mine were made by them; and in ordering, mention "sizes given in order 26,542," with two blocks for each hive, 2 in. long, $\frac{1}{2}$ thick and $\frac{3}{4}$ wide. Order 26,542 was for 100 colonies. The blocks are to use in the feeders when not in use, to close up the hole under the hives to keep bees in. Looking



INTERIOR VIEW, SHOWING ONE END OF HOUSE-APIARY.

frames running the same way as the shelf; and as the hives are 20 in. long there is about 4 in. between the ends of the hives. The shelves are 28 inches wide from the siding. The groove for feeding is long enough to run from about 2 in. from the inner edge to nearly across the hive. By using quart Mason fruit-jars you can see at a glance from each end of the building how the food is being taken. In using the grooves, place a piece of wire cloth in the groove close up to the hive, and no bees can come out into the building. Feeding with this arrangement has no terrors, and no robbers can bother. The feeder is always ready at a moment's notice. Two grooves are under each

overhead you see openings in the center, and running the entire length of building, with slides to cover them when not needed.

In the winter and summer months they are always open; in the winter, to keep every thing dry, and in the summer to keep down the temperature and carry off the smoke from the smoker. During the spring months, keep them closed.

The first building built had only three openings, each about 8 in. square. These would not carry off the smoke fast enough, and this building was made so there is ample ventilation. Each opening is 2 feet by 10 in., and are 2 feet apart. All the openings overhead are equal to

one opening 35 feet by 10 inches. The smoke just hustles up and out lively. On the floor there is built a raised floor 12 in. high and 22 in. wide. On each side of this are openings 22 in. long and 6 in. wide every 6 feet. The raised floor begins 6 feet from the door, and runs to 6 feet of the honey-room, which is in the center of the building. No flooring is laid under this raised floor. The honey-room is made tight, and has a door in each end of building. Each end holds 60 colonies. Studs are 2 feet apart from center to center, except the second one from the ends, which are 28 in. from the end. This gives room to handle the corner hives. Rafters are 2x4's, placed exactly over each stud. Collar beams are 9½ feet from the floor, and are also 2x4's. Over the shelf, and nailed to the studs, are boards about 14 in. wide and ¾ in. thick. In the winter there is placed another on the inner edge of the shelf, and these boards make a trough in which is packed chaff or planer-shavings. The building is ceiled overhead. The entire length is 70 feet, and width 12 feet; cost per running foot, \$4.80. or \$336 for the building; all work hired. If you do all the work yourself, the cost would be about \$90.00 less.

DO BEES DISTINGUISH COLORS ?

Bees locate themselves nicely by the colors, very few bees going into the wrong hive or different color. I happened to see something a few days ago that convinced me that bees can tell colors. The north end of the building has no bees in it, but there are 46 in the south end. I noticed that there were bees flying out and in the yellow color in the north end, and thought it was rather funny; thought possibly a new swarm had gone in there. In the south end there was one colony that was flying strongly— young bees out for exercise. They were from the first hive in the yellow toward the north. The bees were also returning, some of them, to the first entrance toward the north in the yellow color in the north end. After the bees in the south end had quieted down, there were no bees going out and in the other in the north end. The entrances were 27 feet apart. This is plain evidence to me that bees can tell colors; and, mind you, they entered the entrance in the north end of the building, and the same relative position of the yellow color, and not any other.

F. A. SALISBURY.

Syracuse, N. Y., Aug. 7.

[When friend Salisbury was visiting us a few months ago he told me something about his house-apary. Knowing that it was a success I requested photos and an article describing it.

I have always felt a little skeptical regarding the ability of bees to distinguish colors; but friend S. gives an incident that shows conclusively that they have this power. In the building of house-aparies I think we shall have to conclude that painting the different parts of the structure in different shades is a necessity. One difficulty with house-aparies heretofore

has been the confusing of the entrances by the bees.—ED.]

BOTTOM STARTERS IN SECTIONS

SOME INSTRUCTIONS TO BEGINNERS.

By Dr. C. C. Miller.

A correspondent writes: "I believe you cut a starter in both bottom and top of the section. I have tried putting in a bottom starter, but the bees always gnaw it down. Can you tell me what to do to prevent this sort of work?"

I believe it may be worth while for me to do more than merely answer the question asked. Possibly I overestimate the importance of a bottom starter, as we are always likely to think well of our own babies. But I know that, since I used bottom starters, I don't have combs break out in sections in shipping as I formerly did. Often, before using bottom starters, a section would be finished up with a space of about half an inch between the comb and the bottom bar of the section; and in transportation such a comb would swing back and forth and break off. Besides, a section looks ever so much better to be filled clear down, and it weighs more.

There is another point in favor of bottom starters for those who have out-aparies that I never thought of till I saw it mentioned in the A B C. A starter that comes down within one-fourth inch of the bottom-bar of the section is inclined to swing in hauling to the out-apary. If the starter is only an inch or so wide it will not swing at all. Just how wide it must be before it commences to swing, I don't know; but I know that a starter that fills the section all but a quarter of an inch will swing a great deal more than one that is three-quarters of an inch less.

In "A Year among the Bees" I say I shall never use bottom starters less than 1 in. deep, and shall experiment to see how much deeper can be used. That's one of the many cases in which I don't know as much as I thought I did. Further experience made me settle down on nothing wider than three-fourths inch for a bottom starter. Wider than that they're in too much danger of toppling over when they become warm with bees on them.

Sometimes bees will gnaw down to bottom starters; but if every thing is just right, there isn't much danger in that direction. If sections are allowed to stay on a hive when there is no need for them, bees are likely to gnaw the foundation, both upper and lower, and the lower seems to have the worst of it. So it's a good plan to take off sections when a dearth comes, even if they be put on again later. Besides gnawing the foundation, the bees daub it with propolis when idle.

Bees are more likely to gnaw very thin foundation, whether it be at top or bottom, and the very thin topples over more easily than that

which has a little more in the shape of side wall. When convenient I like to have the bottom starter of a little heavier foundation than the top.

I always use foundation enough to fill the section all but about a quarter of an inch, and I don't know for certain just what would be the result of using a narrower starter both at the top and bottom; but I suspect that there are times, when honey is not coming in very rapidly, when a bottom starter under a narrow top starter would be gnawed down; whereas one with only a quarter-inch space between the two would be respected. Where there is a big space between the two starters, the bees are more likely to act as if they thought the bottom starter ought to be got out of the way; whereas with only a fourth-inch space between, the bees at once begin to join the two starters, and after that the bottom starter is pretty safe.

To sum up, then, if you don't want bees to gnaw down your bottom starters, don't have too great a space between them and the top starters; don't use for them foundation too thin, and don't let sections stay on the hive when the bees are idle.

KEEPING TOPS OF SECTIONS CLEAN.

A friend thinks there should be some way devised by which the tops of sections in T supers and section-holders can be kept clean. It would certainly be a nice thing if they could be taken off the hive looking as clean as when put on; but I have some doubt whether it will ever be accomplished—that is, so that every section shall be entirely clean under all circumstances; for I've seen many so clean that you'd have to look very close to see that bees had ever been on them.

The only way I know of that you could have sections so that it would be impossible for bees to put glue on them would be to have something solid fitting down perfectly close upon them, and of such weight that bees could not raise it. You can have cloth to fit down close; but the bees can raise the edge, and then little by little they'll raise it more, and you'll have a big pile of bee-glue on top of your sections. You can have what are sometimes called "pattern-slats" over your sections, but it's simply impossible to have them fit so close that the bees can not squeeze glue into the cracks.

On the whole I suspect they are better off with nothing over them, allowing the bees a space above. In the early part of the white-honey harvest, bees don't seem to have the mania for plastering everything with propolis that they develop later. They seem to feel it their duty to glue only cracks and angles; so at such times, if we have one super with nothing but the air-space cover, it will come off clean, while another covered with either cloth or wood will have at least the edges daubed. Later in the season they will varnish a smooth surface

with propolis; but is it desirable to leave sections on then? Possibly, to some extent. But I suspect that a good deal of the daubing of the tops of sections comes from leaving them on the hive when they ought to be off. A section filled and taken off early will be cleaner with nothing over it. If left after the harvest is over, it would be better for a piece of wood over it.

Marengo, Ill.

M. B. HOLMES.

BIOGRAPHICAL SKETCH BY W. S. HOUGH.

The subject of this sketch, Mr. M. B. Holmes, was born in the township of Bastard, Leeds Co., Ontario, July 29, 1853, and is of Irish descent. He commenced bee-keeping in 1882, not by his will and consent aforethought, but by a fortuitous incident, a swarm of bees coming to him in the harvest-field in 1881. [Is it a dream? Was it A. I. Root who, when a boy, had a swarm come to him at a similar time and place, and who gave Pat 50 cents to hive it, thus forming the nucleus of a great and successful apiary?]



M. B. HOLMES.

Mr. Holmes, being of a thoughtful turn of mind, acted on such information as he had time to acquire in the spare hours from the duties of superintending his farm. In six years he had 60 colonies of bees besides considerable sales and 11,000 lbs. of extracted honey. He became a member of the Ontario Bee-keepers' Association in 1884, and has been a director in that organization since that date.

Mr. Holmes, with commendable frankness, admits that reverses came in the shape of severe winter losses. Happily, in this case it was no disaster—simply a reverse, as it could not affect him financially. By carefully working the nucleus system (imported nuclei) he soon regained the lost ground, averaging in 1893 70 lbs. per colony.

I earnestly wish, Mr. Editor, that all would confess their losses in the apiary, and try to explain the cause with the same candor Mr. Holmes has done. It would save many from similar mishaps. But, unfortunately, some bee-keepers have the bump of self-conceit so highly developed that they can't do this. I know a man who would rather confess to doing a mean thing than admit he made a blunder in the apiary. Do you know any such?

Mr. Holmes, actuated by disinterested motives, and at his own expense, attended the session of the committee named by the O. B. K. A. to wait on the Dominion Government at Ottawa concerning the sugar-honey frauds, and to aid, if possible (through the influence of his friends in that place), in securing the passage of a pure-honey bill. He attended the sessions of the North American B. K. A. when it met in Toronto and Brantford, and anticipates a rare treat when it meets again in Toronto.

Ontario sent about 40 tons of honey to the Colonial and Indian Exhibition in 1886, of which he contributed one and a quarter tons. Mr. Holmes has a farm of one hundred and seventy-six acres, four acres of which are under orchard, with commodious buildings, on one side a view of Upper Delta Lake; on the other may be seen a low range of Laurentian hills with dark wood-shaded ravines—a pleasant country home. He owns and lives at leisure in a good brick residence in the handsome and thriving village of Athens, and keeps bees for the pleasure and instruction they impart, as much as from other motives. He is superintendent of the fine Sabbath-school here and an exemplary class-leader. He is also member of the village council, likewise president of the local bee-keepers' association. Gentle and unassuming in manner, he has an unsullied reputation, and holds the respect and enjoys the good opinion of all who know him.

W. S. HOUGH.

HIVE-NUMBERS.

GOOD SUGGESTIONS ON HOW TO MAKE: PAINT TO USE, AND HOW TO LETTER.

By F. A. Gemmell.

Mr. Editor:—I have just finished reading your issue of July 15th, and observed the article of Mr. G. F. Hyde, of San Diego, Cal., also the one of Dr. Miller, in regard to hive-numbers, and what they should be made of, etc.

I never was an advocate of the number being permanently attached to the hive, although I have practiced numbering them, and therefore take the liberty of calling the attention of both those gentlemen, and any others who may think it a good thing to use such, to a sample I now send you, which I have used for some years past, and which has proved not only convenient, but serviceable as well. They are, as

you observe, made of tin, painted on both sides, although one side is all that is really necessary to paint, except that the side next the hive, when not painted, is liable to rust, and at times soil a nice white painted hive. You will observe I have painted the tin a red color. This was partly on account of convenience and partly on account of looks, as it is immaterial what kind of paint is used, so long as a good contrast is made between the lettering and the background. When I use a dark background I always use a white letter on the same, and *vice versa*. I have tried both ways, and prefer the dark background, as I can use white lead for the figures, and it is easier applied with the brush on the stencils than the black or dark-colored paint, and white lead can be purchased thick, and it then needs little if any thinning or diluting. I first cut the tin into strips most suitable and convenient, as to economy, and then paint them two coats of thin paint, as two thin coats on tin appear to me more suitable than one thick coat.

As soon as dry I use a short stubby brush for applying the paint through the stencil, the latter being cut out of very thin brass. I do not make any claim as to cheapness, by making these hive numbers in this way; but I do know they are convenient and serviceable, as they are only temporarily attached to the hive by a small screw having an eye, so that they can be readily secured by a few turns of the naked fingers. One thing is certain—that, after the stencil numbers are purchased, they will last for years in making large quantities.

Stratford, Ont., Can.

MANILLA TAGS FOR NUMBERING HIVES; A SEVERE TEST.

I see in GLEANINGS, July 15, pages 561 and 564, articles on tags for hives. Now, I do not wish to go against Dr. Miller or Mr. Hyde, but I will tell you what I have seen. I have seen manilla cardboard marked with common writing, and also stencil ink, nailed on to water butts and casks, and then a good coat of linseed oil given them. They would be exposed on deck of a sailing ship in a voyage around Cape Horn, of five months' duration, in the winter months. Now, my opinion is, that a card of that kind on a hive would last for years.

GEO. L. VINAL.

Charlton City, Mass., July 28.

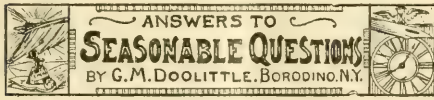
[Well, well! perhaps I was a little too fast in concluding, with Dr. Miller, that manilla tags would not do for hive numbers. Dr. M. will please notice that I am considering favorably the manilla in preference to tin. Certainly no severer test could have been applied than the one you mention. Along in the line of this we all remember of having seen similar tags tacked to the side of box cars, and other places, that have probably been there for months and perhaps years. If soaked in linseed oil they will stand any reasonable requirements on the hive.

Yes, here is another one containing some suggestions as to the shape and size of cards. They are all good, and we will try to keep them in mind when preparing cards for another year. Before going ahead we want to know exactly what would be the best and most suitable tag for this purpose, whether of tin or manilla.—ED.]

I see from last issue of GLEANINGS you propose to issue number cards for numbering hives. I have long been in need of such cards to more successfully prosecute my work in my apiary. I am pleased with your proposition to furnish a suitable card. There may be two forms of cards needed—one to be firmly attached to the hive, and the other movable. The figures should be at least one inch in height, on a ground with enough contrast to be easily seen several steps distant. I would suggest the hanging moving card to be $2\frac{1}{2}$ inches square, printed with one-inch figures, to hang by one corner as per sample, of such colors for card and figures as you think best. The stationery card is to be same size, and printed with one-inch figures, etc., as per sample, to be tacked to the hives at corners. Of course, the movable card can be used also for a permanent card by tacking at the corners of the hives, doing away with the extra card, making one card do for both purposes.

J. W. WINDER.

New Orleans, La., July 22.



UNITING BEES.

Question.—As the season of 1895 has been rather unpropitious for the bees in this section, where only white honey is the source of the supply, I find that my colonies have not the necessary number of bees for winter, nor a sufficient amount of stores; hence I ask what I had better do under such circumstances.

Answer.—In all localities where there is any promise of fall flowers yielding honey, the better plan is to wait with the hopes that they may give the bees a chance to build up as to bees and honey; but where there is no prospect of any such yield, as in many localities with which I am acquainted, the sooner the bees are attended to the better. If the colonies were strong in bees, the question might arise whether it would not pay to buy sugar and feed them, so as to have a greater number next spring; but where colonies are both light in bees and in stores there is only one correct solution of the problem, which is to unite the bees till all are strong; and then if stores are still lacking they may be fed. If we are to unite our bees, the next question which will arise is, how best to do it. There have been many plans given for

doing this, some of which are too laborious to be tolerated, such as moving colonies little by little each day till they are brought together, carrying them to the cellar for a few days, etc., the advocates of these plans claiming that, by their use, none of the bees will return to their former location; yet I find that the more simple plans do just as well where a little precaution is taken by way of removing all signs of the former home from the old stand. The two plans which I use, and those which have always worked well with me so far are as follows:

Having decided that certain colonies are to be united, the first thing to know is, which of the two or three, as the case may be, has the most valuable queen. Having ascertained this, I hunt out the poorest one and kill her, then leave them from two to six or eight days, according to the weather and pressure of business. When they are to be united I take the hive or hives, from which the queen has been killed, to the stand of the one they are to be united with. I now select from each hive the frames having the most honey in them, to the number I wish to winter them on, and set them in one of the hives, alternating them as they are set in the hive. In moving the bees they are first smoked thoroughly from the entrance, when they are jarred by placing the hives on a wheelbarrow in no gentle manner, and wheeling them rapidly to the place they are to stand, first having confined the bees to the hive, and doing the whole on some dark cloudy day when the bees are not flying, which causes them to remain on their combs much better in handling them than would be the case were they not thus disturbed, so that, in the process of uniting, very few bees take wing in comparison to what otherwise would, and these few are so bewildered that they immediately go with the others into the new hive, or united colony, as the fanning of wings and hum of the bees calls them, saying, "A new home is found." Having the hive full of combs containing the most honey, I next shake the bees, which are on the remaining frames of combs, off at the entrance, taking one frame from one colony, and the next from another, and so on, so as to mix the bees up as much as possible. When all the bees are inside of the hive, the work of uniting is done. Remove the hives, bottom-boards and all, from the stands occupied by any of the united colonies previous to this, and no loss of bees will occur. What few bees go back to the old stands upon their first flight after this, return after finding their old hives gone; also the mixing-up and jarring process spoken of above causes them to mark their location anew, the same as does a new swarm, or when the bees take their first flight in the spring.

The other plan I use, mostly later in the season, and with smaller colonies, taking the

queens away as before; but when doing this I take all the combs from the hive but the two or three which contain the most honey, the brood all having hatched by this time, and spread these combs about an inch apart, setting them out about two or three inches from the side of the hive, so that the bees may all be clustered on these combs, instead of hanging to the sides or any part of the hive. The hive which is to receive the bees and combs is also to be prepared beforehand, by taking away all the combs but three or four, those being left being the ones having the most honey in them, said combs being placed close to one side of the hive. Having all thus fixed I wait as before for the colonies thus fixed to realize their queenlessness, and till a day occurs when it is from five to ten degrees colder than is required for bees to fly, when I find them all clustered compactly between the spread-apart combs, something as they are in winter. When the right day arrives I light my smoker and put on my veil, for in the following plan described we can not use the hands at times to get off a stinging bee, should one suddenly sting near the eye. I now go to the hive having the queen, and uncover it, giving the bees a little smoke to keep them quiet; and, leaving the hive open, so that I can set other frames right in without hindrance, I go to one of those from which I took the queen, blowing plenty of smoke in at the entrance while I uncover the hive, when more smoke is blown over and around the frames from the top. Quickly set down the smoker and place the two front fingers between the two first frames near their ends, the large fingers between the second and last frames, while the third and little fingers are placed beyond the third frame, when, by closing up the thumbs and all the fingers, the frames with the bees all clustered upon them can be lifted out of the hive at once and carried to the open hive, where they are to stay, and sit down in it all together, close up to the frames of bees that are in this hive. I now go back and get the smoker, and blow enough smoke on the bees to keep them down while I am arranging the frames as I wish them, and adjusting the division-board, if one is needed, fixing all for winter without having scarcely a bee take wing. Should any colony be so strong in bees that a few come out on the sides of the hive, this hive can be placed immediately over the united colony before fixing the frames, when, with a brush and a little smoke, they are easily got into the hive below. Having all in and the hive closed, clear away all that looks like home from the vacated stands, as in the first plan, and the work is done. Both of these plans are very simple, and accomplish just what is desired, the latter being a little the easier where the colonies are small enough so that the bees can all cluster on three combs well spread apart.



SWEET CLOVER ON THE INCREASE.

Although the early rain failed, the latter did not, and July was a month of downpours and showers, and nature rejoices. Sweet clover has been on the increase in this vicinity for a score of years, and has taken possession of the bluffs, gravelly knolls, ravines, gutters, sides of less frequented streets, until its fragrance is everywhere. It is now blooming luxuriantly, and bees are daily working upon its delicate racemes. White clover, dandelions, vervain, and a plant known as butter-and-eggs, are blooming abundantly. I've not seen bees at work on any of them this season.

Bees commenced to swarm Aug. 1, and have their combs built out white. During the drouth I noticed a colony that was weak; but as workmen were busy erecting a house on a lot adjoining, within a few feet of them, I thought it prudent not to disturb them. A swarm came out, and, without clustering, went directly into that hive and were cordially received. How did they know that they were wanted there?

Peoria, Ills.

MRS. L. HARRISON.

LIGHT HONEY CROPS; SWEET CLOVER.

The surplus-honey crop in Northern Illinois will be a light one this year. This is owing mainly to dry weather during the present year and for several previous years. White clover has been virtually destroyed by the dry weather. Unless we have a change in the weather, there is no use of depending on the white clover any more as a honey-plant.

Notwithstanding the loss of white clover, I think I shall be able to report an average surplus of extracted honey this year, of not less than 50 lbs. per colony, spring count. This surplus is mainly from basswood and sweet clover—about as much from one as from the other. This is a small average, as I ought to be able to report an average of at least 100 lbs. surplus per colony from sweet clover alone. I think I could do this if I could control the crop. The crop, as a honey-plant, is destroyed in this locality in two ways—by mowing and by pasturing. The city authorities here mow it down along the streets. This, of course, they have a legal right to do. But as they do not confine their work to sweet clover alone, we honey-producers have no right to complain. And the farmers are busy also in destroying sweet clover as a honey-plant. They have found out that their cattle will eat it; they therefore turn out their cows to pasture upon it when they are short of feed on their farms. They hire a boy to herd their cows and keep them within proper bounds. The cows will eat the plants even

after they come into bloom, and when from 4 to 6 feet high. Some farmers make it a practice to cut it before it comes into bloom, and haul it to their hogs. The plant is then so succulent that hogs will eat it readily. Those who have used it in this way regard it as of great value for hogs alone. There are some farmers here who contend that it will pay to grow sweet clover as a regular farm crop, especially for hogs and cows. If we have many more dry summers they will be driven to it, for sweet clover is one of the crops that will make a satisfactory growth without regard to dry weather. This year, where the pastures are literally burned up, the sweet clover close by is as fresh and rank in growth as could be desired. I have measured individual plants this year that were over eight feet high, and I have seen acres of it from four to six feet high in beds of gravel where nothing else seems to grow.

M. M. BALDRIDGE.

St. Charles, Ill., Aug. 5.

FISH & CO.'S HONEY QUOTATIONS; THE GREAT IMPORTANCE OF SHIPPING CASES WELL MADE.

Mr. Root:—In your issue for Aug. 15, p. 618, Dr. Miller says that strictly fancy comb honey is quoted by one firm at 12 to 13, while another firm, which is S. T. Fish & Co., say, "We anticipate a price of 14 to 15 cts.," and he adds, "I anticipate they'll anticipate a higher price than that before they are flooded with consignments this year."

We believe that Dr. Miller meant no harm to us when he made the above statement; but some people may infer that we are not entitled to having consignments. We advertise in your paper, and we doubt whether you would permit us to advertise if you did not think we were a responsible firm; and we want to say right here, that, any time any man wants to sell us honey, we will pay him the cash for it; but there are times when it is impossible to buy honey, owing to quality and many other arguments that we could advance.

Since you give us this space we want to say that one thing seems to us must be improved in order to further the success of the bee-keeper financially; and that is, they must use a proper package for comb honey. They should not use anything larger than a 24-lb. section-case, and this case ought to be made by the A. I. Root Co. or some firm as capable. We saw some honey from California the other day, that was sold as fancy, that is in a case that makes the honey second grade, as the case is too large for the section; the wood is not of proper material, and is not properly put together. Advertise your cases to everybody, and see that everybody uses them.

One man sent us in some cases painted drab in color. He was under the impression that this would hide the unplanned boards, and might shield the thick wood and heavy nails that he

used. If this honey were in a proper package we could get 15 or 16 cts., while to-day any one can have it at 13 to 14 cts., as it is not in proper shape, and will not sell alongside of fancy.

We received our first consignment of new honey to-day from George S. Scott, Wadena, Ia., put up in 12-lb. cases, three sections being shown through the glass. The shipment weighed 791 lbs., and we sold it at 16 cts. This is as pretty a package of honey as we have ever handled, and we could sell carloads of such goods on arrival, at the outside market price.

Later on, if you care for our opinion we can tell you what we think of the future outlook of the honey situation. Now, we can not tell; but we certainly expect to sell our receipts as per our quotations in your Honey Column, and we must anticipate the price if we had no receipts, and could not report actual sales at the time we sent you the quotations.

Chicago, Aug. 24.

S. T. FISH & CO.

[We should be glad to hear from S. T. Fish & Co. further. We believe they are not only reliable, but alive and active to the interests of the pursuit. It would be well for those bee-keepers who think "home-made" stuff is "just as good, and cheaper," to ponder over carefully the third paragraph above. "Penny wise and pound foolish" fits the case exactly.—ED.]

REDUCING STOCKS, AND UNITING.

I have about 50 hives of bees, and do not wish any more increase. About half of the queens are mated. 1. Would it be a good method to reduce to one-half by killing the mated queens and uniting the hybrid bees with the Italians, and using the empty hives and frames next swarming season? 2. Would it be better to unite in the fall, or early next spring? The colonies are strong; winter loss is nominal here.

R. F. RITCHIE.

Rumford, Va., Aug. 8.

[1. You can do this way providing you wish to reduce stocks; but your hybrids may kill some of your good queens after uniting. 2. Unite in the fall.—ED.]

ANOTHER "COLOR VICTIM."

Another "color victim" wishes to correct one of the errors of last season. I paid a good price for a large noble-looking queen that would be a hummer in a one-frame hive. Her bees are very pretty, resembling some variegated tropical bugs; but I have pinched their mother, and her domain shall be given to one of your queens. I have had my "beautiful" experience; and if you send me a good serviceable queen, raised from an *import*, I care not what color she or her offspring displays.

New Matamoras, O., July 9. W. M. GRAY.

AN INTERNATIONAL BEE-KEEPERS' CONGRESS.

It is proposed to hold an international bee-keepers' congress on the 4th and 5th of December, in Atlanta, during the Cotton States' Exposition. The call has been signed by most

of the prominent bee-keepers in the Southern States, including Texas. At this time of the exposition the railroad rates will be at their lowest, the work in the apiary for the year will be ended, and the bee-keeper will have a grand opportunity to meet and mingle with his brethren in convention, to shake hands, to become acquainted, and talk over questions of vital importance to the success and prosperity of his pursuit. This gathering of bee-keepers will know no lines of latitude or longitude, but will take in the whole American Continent. It is hoped that every live and wide-awake bee-keeper will make his arrangements to meet his brethren on the above days. Subjects of the utmost importance to the continued success of this industry will come up for discussion, in which every bee-keeper in our country should feel the deepest interest.

All the bee-journals and agricultural papers are most respectfully requested to notice the time of this meeting. DR. J. P. H. BROWN.

Augusta, Ga.

BEST HONEY-FLOW FOR YEARS.

We are having the best honey-flow here that we ever had. It commenced about July 8, and still continues. From one colony (the best one I have) I extracted, July 19th, 70 lbs.; and on the 28th of July, from the same colony, I extracted 80 lbs., and in two more days I shall extract about 80 lbs. (16 L. frames) more from them. The honey is very white, gathered from white clover and alfalfa.

J. A. SMITH.

Heber, Utah, Aug. 6.



L. R. D., Kan.—Yes, queens have stings, and sometimes they use them, but only on other queens, and not on bees. In very rare instances they have been known to sting human beings.

C. M. L., Ala.—The instance you relate, of two queens living together in one hive, one the mother and the other the daughter, is quite a common one. As you surmise, the old queen will probably be superseded in a month or so.

J. B. W., Ga.—The longest comb that has ever been made in bee-trees, that I remember to have seen reported, was 9 feet. We have had frequent reports of where they have been 6 and 7 feet long; but even these lengths have been rather extreme.

W. T. T., Mich.—If you desire your bees to swarm, and they refuse to do so, it is probably because the honey season is now about over. I would advise you to practice what is known as "artificial swarming," as described in the A B C of Bee Culture.

F. H. F., Tenn.—The dead drone brood that you sent is evidently immature, and it has been pulled out of the cells by the bees because of the sudden stoppage of honey. If all their worker brood is all right, and drone brood only is found at the entrance, this would be the explanation.

I. S., Mich.—The best way to ship honey is to put it up in large crates, ten or a dozen cases to the crate. The bottom of the crate should contain straw, so as to cushion the cases; and handles should stick out of both ends so that the freight-handlers can easily load and unload the crate.

L. E. A., Minn.—1. If you have honey-dew in the hive it would be well to extract it before winter, and feed the bees sugar syrup. The extracted stuff may be fed them next spring, when it will do them no harm. A better way would be to take out the combs containing the honey-dew, put in frames of foundation, or empty combs, then feed syrup. This will save the expense of extracting, and the trouble of the daub, and give you good combs of stores next spring. 2. Bees may be fed immediately after extracting, and they will repair and clean the combs up in short order. 3. The putting-back of the combs in the former order is not essential. What brood there may be in them should be placed pretty well in the center of the hive; but in the fall we usually do not like to disturb the position, because the bees make what is known as a sort of winter-nest—that is, empty cells massed through the center of the brood-nest, for the bees to cluster on. 4. There is no way of discriminating between beet and cane sugar—at least, on the part of the ordinary bee-keeper. Our own experience shows that one is about as good as the other as a winter feed; but over across the water, a few think the cane is far better. We never found it so.

L. N., Mo.—1. Anywhere from 50 to 75 colonies usually makes enough for one yard. Some localities will support 300 or 400, but they are very scarce. 2. Bees fly on an average about a mile and a half, although they will often go farther, say two miles or two miles and a half; but so long as there is plenty of forage they will not, as a rule, go farther than the first-named distance. Instances are on record where they have gone as far as 7 miles over bodies of water or across a barren stretch of land. 3. One man can not usually take care of more than two or three yards of 50 or 75 colonies each, and even then it is advisable to have a little help during the busy time of the year. 4. A good colony, depending upon the season and the man, will make anywhere from 5 lbs. to 75 lbs. of comb honey; but during the past dry seasons there has been hardly an average of 25 lbs. in the North. Perhaps 25 or 33 per cent should be added to the foregoing figures when extracted honey is under consideration. 5. A good man with a thorough understanding of the business

may increase his colonies by artificial swarming or dividing in connection with feeding, 300 or 400 per cent; but practical bee-keepers do not care so much for increase as for keeping strong what colonies they have. 6. We would advise you to transfer after the honey season. This will give the bees plenty of time to get thoroughly settled in their new quarters.



THE TORONTO CONVENTION, SEPT. 4, 5, 6.

THERE will be representatives there, of course, from the Home of the Honey-bees.

THIS issue numbers 15,000. We shall be sending out a large number of extra copies again during the fall, and our advertisers should not fail to take advantage of these big editions. No more will be charged for advertising rates.

THE fine engraving of crimson clover, on page 658, is a decided improvement in the way of finish over the original; and yet our engravers have followed the details exactly. So far as I can discover, from live specimens we have, the picture is a true representation of the plant. I anticipate that, by another season, there will be hundreds and perhaps thousands of bee-keepers who will be growing it.

THE RAGE FOR GOLDEN BEES STILL ON.

THERE is still, I understand, a large demand for five-banded queens, or, rather, queens that are supposed to produce bees having five bands. Why this is so, in view of their generally reported bad behavior, I can not say, unless it is because bee-keepers are so blind that the *only* desirable point they *can* see in a queen is her ability to produce golden bees. Take them as they run, the average bee-keeper will be far better off without them. I certainly have no antipathy toward them, and certainly none toward those who breed them; but I feel sure they (the yellow bees) will soon go the way of the Cyprian and Holy-Lands that for a time, as our older readers know, had just as great a rage in their favor as the five-banders; and yet for the last few years no one has advertised the Eastern bees, nor does any one know of any breeder who has them for sale.

HOW TO PUT ON BEE-ESCAPES WITHOUT DOING HEAVY LIFTING

is, perhaps, a kink not yet discovered by some. It is easy when you know how. With a screw-driver or strong putty-knife pry loose one end of the super from the brood-chamber. Lift it up just a little way and blow in a little smoke.

With the escape-board right handy, lift up with one hand one end of the super, and tilt it to an angle of 45 degrees. Now slip the escape-board under as far as you can; let the super down on to the board, and then with two hands crowd the board itself squarely over the hive, and finally, in like manner, the super squarely over the escape. This is far easier than lifting the whole super off bodily, setting it on the ground if you can find a place, putting on the escape-board, again lifting the super off the ground and setting it very gently and squarely over the escape-board—if you can. I tell you, it is not easy to hold a hive-super, weighing perhaps 100 lbs., suspended in mid-air, and let it down *easily* and *squarely* over the board. The plan I gave first is, oh so much easier! Try it, if you have not yet learned the knack of it.

DIAGNOSING BROOD-NESTS WITHOUT HANDLING FRAMES.

By the way, if you will not handle frames, did you ever notice that you can judge of the amount of brood a colony may have, by looking at the *under* side of the brood-nest, far better than at the top? The line of honey along the top edge, when bulging out, will often obscure any brood there may be beneath; but not so in the case of the bottom. There are fewer bees there; and the brood, if built down at all, will usually extend down close to the bottom-bars. "But," you will say, "I do not like the fun of lifting hives up to see." Very well, don't do it. Do not stop to pull off the cover, but just pry the hive loose from its bottom-board, and lift up *one end* and peek under. It can be done very quickly, and oftentimes a very satisfactory examination can be made. But when I want to make *sure* I lift off the cover and pull out the center frame, then I have virtually seen the whole hive. But perhaps the other plan may commend itself to some.

A GOOD SUGGESTION—REDUCTION OF MEMBERSHIP FEES TO THE UNION.

I LIKE the suggestion of J. W. Rouse, in the *American Bee Journal* for August 15th, on the subject of the Bee-keepers' Union. After commenting on the proposed reduction of membership fees, he says:

I have another plan to offer, which is, to reduce the membership and annual dues to 25 cts., empowering the secretary to draw on each member for 25 cts. more per year if found necessary. It seems to me this proposition should secure thousands for membership. Now, while, if this plan should be adopted, in making a call for the second 25 cts. some might not respond, the by-laws could be the same as now—where one failed to respond, the benefits to be derived from the Union to cease in his behalf after so long a time after payment of dues should cease, or have failed to be paid.

It seems to me that this is entirely feasible and practicable; and whether the Union be

amalgamated or not, it would be well to carry out the idea. We need the power of *numbers* as a moral backing, and this, it seems to me, would insure the very thing we most need.

THE AMERICAN BEE JOURNAL.

I HAVE sometimes wished that Bro. York were not so good a friend of mine. Why? I have often read with interest the good things in his paper, and have felt like commenting on what he and his correspondents have said; but somehow I have felt that, if I did make such comments, a few (the anti-admiration-society fellows) would say I was doing it to pat "Bro. George" on the back. But really I do not know that this is any *good* reason why I should keep back any thing that I wish to say, if it is deserving.

Well, it seems to me the "Old Reliable" grows better and better as it grows older; and in its 35th year, and in its latest number, we find more good solid matter in it—practical, helpful matter—than at any time in its previous history; and in saying this I do not wish to disparage its past. The articles are well selected, sifted, pruned, and paragraphed. The Question and Answer departments, by Dr. Miller and others, are good. All through I think I can see the evidence of hard, painstaking editorial management.

I shall not attempt to make any sort of review of this or any previous issue; but you know that I said there were several queen-breeders who would or were about to give up the breeding of five-banded queens. Among others that I have mentioned, here is what one of them has to say on page 536, regarding the behavior of some of the cream of the goldens. I give it right here because it seems to be quite in line with what others as well as myself have said of these bees in general of late:

ANOTHER HARD RUB FOR THE FIVE-BANDERS.

I obtained my first five-banded bees from L. L. Hearn, but in a very short time I learned that G. M. Doolittle had given Mr. Hearn his start in these bees. Mr. Hearn's bees proved to be unprofitable, and so the next queens were obtained from the author of "Scientific Queen-rearing." The first queen I obtained, Mr. Doolittle had named "Dandy," for which I paid \$6.00. I introduced her to hatching brood, as the weather was warm, and every thing seemed favorable for a colony of "goldens," as I added a few more frames of hatching brood; but what was my surprise in a couple of weeks to find this fancy queen failing. I then put her into a nucleus and kept her colony weak until autumn. Early in October I put her nucleus into a chaff hive, and gave her plenty of good combs with nice sealed honey, and brood hatching, from a good hearty colony; and, as I knew the bees would not expect much from their queen during the winter, I left them severely alone until early in the spring.

On opening the hive I found a young queen and "Dandy" still at large in the hive. I lifted out a comb with "Dandy" and adhering bees, making a

weak nucleus. In three weeks "Dandy" had disappeared and three queen-cells were started. These were given to a strong colony, made queenless, to feed and complete the cells. Mr. Doolittle sent another to replace her. That was very kind in him; but the second one never filled more than three or four Langstroth frames with brood; and from this queen, and the three reared from "Dandy," I reared 29 queens, nearly all of which I sold for \$2.00 for choice, and \$3.00 for the selected or very best. Some of these queens were sent to Canada, and some to Pennsylvania, some south and west. Some of the old readers will remember that I sent the samples of bees to Thomas G. Newman, then the editor of the *American Bee Journal*. The bees sent showed the sixth yellow segment. Of course, these were picked bees. So far as I can know, and have knowledge, not one of these reared fancy queens produced bees that were hardy enough to come through the winter without adding black stock.

My next breeder was a very yellow one from J. D. Givens, of Texas. This queen kept two or three combs fairly stocked with brood and eggs for about three months, and then was superseded by the bees. I keep bees partly for pleasure and study, and took a fancy to the yellow color; but now I am about dead to the "goldens" though it was a hard death to die.

Last autumn I ordered one more of these queens from Mr. Wood, of Massachusetts, and one from the famous breeder of these bees in Maryland. I gave each plenty of combs with late-hatching bees from hardy blacks. These were packed in a long chaff box containing 11 colonies. One of these colonies died early in the winter. The other was about fizzled when I unpacked them in the spring. The queen was yet alive, and a few black bees, but not a single yellow bee lived through the winter.

But the greatest fault I find with them is the unprolificness of the queens. I never had a colony of them to get populous enough to get the swarming-fever. When these queens mate with hybrid drones, they are some better; but, all in all, the "goldens" ought soon to be a thing of the past, unless they can be improved. W. P. FAYLOR.

TAKING MORE THAN ONE BEE-JOURNAL.

In our last issue I made such extended comments on the *Bee-keepers' Review* that I was really afraid the other journals would think I could see no merit elsewhere. How often have I felt that, instead of making extracts and comments, I should like to publish over again whole articles of the other bee-papers! But that is impossible; but it is possible, with a great majority of our readers, probably, to make a selection of at least three, and buy them at club rates. But, you say, money is scarce. When it has often happened that a single item in any one of the papers has saved the reader *dollars*, can you, dear reader, afford not to take them? Bee-journal editors can scarcely be called rivals. With hardly an exception they "bee" brethren.

OUR BASSWOOD-YARD, ETC.

OWING to ill health and lack of strength to take my usual wheeling-tours this summer, I have been unable to give the out-yard in our

basswood-orchard, run for extracted honey, very close attention; and our apiarist was too busy with the home bees to give very much of his time. The consequence has been, that the out bees have been somewhat neglected, as will appear later on.

On the 21st of August, feeling much better, and strong enough to push a wheel, I took a run down and looked over the bees. Prior to this during the basswood bloom our men had gone down once or twice and put on extra stories, so that there might be room. They were not visited again until I went on the date mentioned; and as I knew they had been storing honey rapidly at the time of putting on the supers, I was not surprised to see the same pretty well filled then.

As I pulled up several supers, and found them crammed full of honey, and saw here and there burr-combs built between the two-stories, and on top of those thick-top-bar frames at that, the thought came to me, "There, W. Z. H. would have the laugh on me if he could be here now, after what I wrote about the scarcity of burr-combs over thick top-bars, on page 636." This was something I had never seen before, and I said to myself, "No, I won't be laughed at yet; there is a cause for it." And, sure enough, in the very instances where burr-combs were built between the two parts of the hives, I discovered that the upper stories were crowded to their *utmost* capacity; no, there was not one cell of room left. What else could the poor bees do than to think in burr-combs in the spaces they are ordinarily supposed to leave clear? You see the facts are here: The apiary, as I have previously explained, had been neglected, and those colonies that had burr-combs had not been given sufficient room in the first place; that is, they greatly exceeded the expectations of the men who put on their supers in the first place. In an apiary properly cared for, no burr-combs would have appeared at all; indeed, there were none — absolutely none — in those hives that were not "clear crammed jam full."

Of course, every bee-keeper knows it is a serious waste to let hives get so full of honey, to say nothing of the tendency to encourage swarming and its attendant loafing. I do not therefore think what I said in regard to the burr combs in question was too strong in apiaries that are *properly cared for*;^{*} and when the bee-keeper himself keeps ahead of the bees, as he always should do, that intolerable nuisance, burr-combs, is done away with.

THOSE FIVE-BANDERS.

In the way of honey, the three-banded leather-colored bees were away ahead; and, oh how much pleasanter to handle! Moreover, the

yellow fellows nosing around in a most disagreeable way, trying here and there to get a sip of honey while I was making an examination.

By the way, we had a bad robbing-spell, I am sorry to confess, at our home yard a few days ago. This is, you know, devoted to queen-rearing; and it seems one of the small nuclei failed to make the proper defense, and before we knew it there was an uproar. It was a most noticeable fact that the leaders in this robbing were the *extra-yellow bees*, and there are only three or four colonies of them now in the whole apiary of over 300 colonies and nuclei. Our Mr. Spafford, who has charge of the home yard, says he wants no more of them, and I am sure I don't; and as a matter of fact we have been getting rid of them as rapidly as possible.

BEE-ESCAPES.

I had a good chance to test the relative merits of the Porter and the Reese escapes. I lifted up the supers, put the escapes on that afternoon, and two days afterward our men called down with a horse and wagon, followed a little later by your humble servant. I was very anxious to see what the escapes would do; and after two days I was a little surprised and a little disappointed to see in some cases that the bees had not all evacuated. But it was noticeable that the Porter gave us the cleanest supers. A little smoking-down finished up the job. The honey was taken off without removing a single frame. The escapes have on previous occasions worked a little more promptly. Why they did not in the present instance, I do not know, unless it was that the colonies were extra strong. In all such instances I put on a super with empty combs or foundation, to afford them clustering-room.

LARGE COLONIES FOR HONEY.

As has been previously the case, the large colonies of two and three eight-framers did altogether the best in honey. Colonies occupying two eight-frame stories generally filled both of them. In some instances they filled two stories, or a story and a half, with surplus extracted honey.

HALF-STORY EXTRACTING-SUPERS.

I was greatly pleased with the working of these supers. They were easy to handle; *i. e.*, to lift, and the queens kept clear of them. In some cases the queens went into the full-depth extracting-supers, but not in one instance did they go into the half-depths; but the bees themselves occupied the one as readily as the other. In fact, they just filled them with honey; and, oh how much pleasanter it was to lift the half-depths, one at a time, to put the bee-escapes under!

It may be well to remark in this connection, that these supers had wide top-bars, and, of course, the queens did not seem inclined to lay

^{*}Are not all the reported cases of burr-combs over thick-tops due to expensive and wasteful overcrowding?

in one or the other with the divided space. Our extracting-supers are not made for brood-chambers, and are not intended for that purpose.

EIGHT VERSUS TEN FRAMES.

There is just one point I want to emphasize again in regard to this discussion. Suppose we admit, for the time being that large hives are better than small ones. I for one would not essay to lift any thing heavier than the eight-frame hive when it is full of honey. I have "broken my back" in lifting such full of honey as it is, and I never want to handle larger brood-chambers. While some people may be strong enough to lift and handle ten and twelve all in one story, I am sure life is too short for me to attempt any thing of the kind so long as two eights accomplish the same result with the (to me) indispensable advantage of being able to handle them one at a time.

Why, when we essayed to carry those single-story eight-frame (full depth) full of honey to the wagon it was all two men could do comfortably, and not very comfortably either, you would say, if you could have seen them screw up their faces.

HUMBUGS AND SWINDLES.

LOOK OUT FOR THEM; HOW AN HONEST BEE-KEEPER WAS SWINDLED.

If everybody could read the sad stories that come to us about the failure of the honey crop, the drouth, floods, and accidents of various kinds, and the stories of the expense and trouble that oftentimes are undergone in getting only a small crop, they would surely feel as I do—that, when the bee-keeper once gets a crop of honey, he should be exceedingly careful not to let it slip through his fingers and fall into the hands of swindlers. The Humbug and Swindle department has been, I believe, rather laid on the shelf of late, especially where it concerns bee-keepers and the honey business; but I am feeling so well now I think I will roll up my sleeves and dare them—nay, I will do more than that; I will hunt them out of their holes, and hold them up to public gaze; and if I can get them behind prison-walls I shall feel happier still, even if it does cost me some money. As an illustration, I am going to give you a little story at full length.

HOW A BEE-KEEPER LOST \$67.80 WORTH OF HONEY.

Friend Root:—Some days ago I wrote your firm that I had sold some honey, and that the parties would send me the money on the 3d of July, when I would remit to you, etc. I waited on them until the 13th, and in the mean time wrote them for the money, \$67.80. I could hear no more from them. On the 13th I went to Memphis, having become uneasy about it. I inclose you one of their letter-heads:

A. M. McLEOD & CO.

Manufacturers of and Dealers in

ALL KINDS OF FANCY PICKLES.

Wholesale Only.
22 Peyton Ave.

CONDIMENTS.
HONEY, JELLIES, ETC.

Memphis, Tenn.,.....189

When I found the place there was no business house of any kind there—only a very small cottage.

I called for A. M. McLeod, or some one of the firm, but an old grey-headed lady came to the door and informed me that A. M. McLeod was out somewhere, and would not be in, probably, before night. I then learned from a near-by grocer that I would probably find him at No. 148 Johnson Ave. I went and found a couple of young men who were very reluctant about giving me any information whatever; said he was not there. They knew nothing of Mr. McLeod's business. After much time and expense I was told to go at once to 148 Johnson Ave., and I would find McLeod there, which I did. He coolly informed me that he had gone out of business and had nothing to pay me with; that he was then at work for that firm on commission. I asked him what he had done with my money. He said he had sold all of it; that a portion was sold on credit, and he had not been able to collect it. I asked what he had done with the money he had taken in, and his answer was that he had an old mother to support, and had to live off the money taken in for the honey. I showed him his letter-head and letters, and asked if he did not know he was a fraud, and was as good as stealing that amount, \$67.80, from me. To cut the matter short, I am beat out of the whole amount, and have no hope of ever getting a dollar of it. The other fellows who are in the deal with McLeod are named Greenwood. When I asked McLeod who were the "Co." part of his concern he coolly said there was no company—that he had put the "Co." to it to make it look bigger. I think they will drop the firm name of McLeod & Co., and use that of another, probably that of the Memphis Pickling and Canning Co., as I saw some honey put up with labels of that sort that I feel sure was some of my money.

R. J. MATHEWS.

Rosedale, Miss., July 20.

We find the above firm quoted both in Dun and Bradstreet. One of them gives the capital as "very moderate," and the other quotes blank. We promptly notified both in regard to this transaction, and have received their thanks.

One big point comes out here sharp and clear: Do not send honey to anybody until you have found out from some bank or otherwise that they are reliable parties. What *they* themselves write to you in regard to their standing, business, etc., is no evidence at all unless they give references to somebody who is known. The fact that they have a letter-head goes a very little way—may be like the case above—only a little cottage out in the suburbs—no company, no capital—nothing but a miserable thieving rascal at the bottom of it all. Of course, we wrote to McLeod & Co., telling them what we should do unless they made some satisfactory arrangement at once with friend Mathews. He writes us below:

I have never heard any thing more from A. M. McLeod. I am almost positive that they are still in the swindle under the name of The Memphis Pickle and Preserve Co. I have seen a letter-head of this company at 148 Johnson Ave. Memphis. There is where I found McLeod, and I am sure I there saw some of my money he swindled me out of, and told them so. I would warn all honey-producers to have nothing to do with them. They ordered a barrel of honey from me a few days ago, saying they wanted the same kind I had sold to McLeod & Co. I can assure you I did not send it.

R. J. MATHEWS.

Rosedale, Miss., Aug. 16.

We can find so such institution as the Memphis Pickle and Preserve Co. quoted at all; so our friend's surmise is probably correct. Now, friends, we are unacquainted with the laws of the State of Tennessee; but if any reader of GLEANINGS in that State will get competent legal advice as to how to proceed, we will have McLeod where he ought to have been long ago, and furnish the money to do it. No wonder they wanted some more honey like that which he sold (?) to McLeod & Co. If this thing is not stopped, all the thieves and pickpockets in the land will be starting a pickle and honey business.—A. I. R.



A VISIT TO DUDLEY ADAMS, PRESIDENT OF THE
HORTICULTURAL SOCIETY OF THE
STATE OF FLORIDA.

While at Lake Dora I visited the beautiful grounds and residence of President Adams. Irving Keck told me I must see that place, sure. Friend Adams is an original enthusiast and experimenter in Florida fruits, and Florida agriculture in general. At present he is taking considerable pains to develop the idea of mulching not only plants but orange and lemon trees, and for some years has been scraping up brush, leaves, weeds, and every thing he can get hold of, to pile it up around his orange-trees, not only that he may cover the ground so as to keep down the weeds, but to keep the soil

come, and also to preserve dampness, the rich soft mold was raked or hoed up so as to cover the stump. Friend Longstreet, who accompanied me on my visit, took the liberty of pulling the dirt away from some of these little mounds, and, sure enough, there were the buds already started. When almost everybody else in Florida was lamenting that there was no budding-wood left in the whole State, friend Adams had a good stock on hand ready to use, and had many of his buds already started. He said to us something like this:

"Like everybody else, I have for years been trying new varieties of oranges; and I had just got to the point where I decided it would be worth a great deal of money to me if my orchard were reduced to four or five kinds, and those just the kinds I wanted, and no other. Providence has helped me to get the thing just where I wanted, and it has also obliged me to make a more thorough job of it than I ever should have thought of doing had not the frost made that tremendous 'move' on us; so you



RESIDENCE OF DUDLEY ADAMS, PRESIDENT OF THE STATE HORTICULTURAL SOCIETY OF
FLORIDA, MT. DORA.

damp, and encourage the formation of nitrogen. Friend Keck informed me that Mr. Adams uses fertilizers as well as the rest, but that fertilizers were scattered all through the leaves, brush, and rubbish of all sorts. I believe this is not quite true, for the grounds are remarkably clean, and free from weeds, in the spaces between the trees where it was possible to cultivate. In fact, notwithstanding the enormous quantity of rubbish in the shape of mulching material on his premises, every thing looked very neat and tidy. Of course, his oranges had suffered with all the rest; and hundreds of great trees, nearly a foot through, had been cut off close to the ground. The day after the freeze, if I remember correctly, he sent a telegram to California, for orange-buds of the varieties he wanted; then as soon as it was certain that a tree was dead or greatly injured, down it went, and buds were put all around on the stump, between the bark and the wood. For protection from another frost that might

see that, instead of lamenting, and counting up my losses, I can really afford to look bright and cheerful in anticipation of the nice new orchard and new fruit that I shall have in a very short time; for nobody knows how quickly a bearing grove of orange-trees may be produced with the great roots to the trees, that are comparatively uninjured."

I have before spoken of the light, airy, well-ventilated Florida homes. The one belonging to President Adams pleased me so much that I begged a photo of it, and I invite your attention to the half-tone copy shown above. I should have stated that his place was situated on one of the beautiful declining slopes toward Lake Tavares. The opposite side of the house is done off with verandas exactly like the one that faces us; and right through the center is a large open hallway where there are rocking-chairs, lounges, and every thing needed for rest (what a nice place for a noonday nap!), with no interruption to the cool breezes. If

the spectator were a little further to the right he would see the beautiful lake through this open hallway. In fact, it would be visible if it were not for the shrubbery on the left. The kitchen, and every thing pertaining to the dining-room, is on the right, as you notice; while the sitting-room, being cut off by that large open hall, makes a nice, cool, and shady retreat; and this sitting-room, or parlor, is finished with specimens of almost all the woods and trees known in Florida, not omitting boards cut from the queer corky-looking palm-trees. A beautiful specimen of the date-palm is seen at the lower left-hand corner; a smaller one on the opposite side of the picture. The veranda on the opposite side is right in full view of the lake, six or eight miles long.

Before leaving, we visited the neat and tidy barns. Of course, such barns are not needed in Florida as we have here at the North. When I asked friend Adams if he had succeeded in growing his own hay and grain, instead of buying from the North, as so many horse-owners in Florida do, he showed me samples of his feed that he had no trouble in securing in great abundance, and he says it is much cheaper than he could get any kind of horse-feed from our great grain-growing Western States. Rice is one of his favorite products for feed; and he cuts it just before the grain is fully mature, so it can be stored and fed out in the bundle, giving the animals both grain and hay at one and the same operation. In fact, our whole visit was really refreshing. You may remember that the state of agriculture in Florida at the time of my visit was such that almost any one would be considered excusable for feeling discouraged; but to find a man who saw openings for great results in almost every direction, and one who could rejoice that even the frost had done a great work for him, was really worth while; and the Florida Horticultural Society has done wisely in selecting such a man as their leader. One unconsciously begins to wonder, as he looks over such a place, whether it is really possible for the average man to succeed so well, even if he tries ever so hard. Well, I presume it is true that God does give special gifts to some; but I am sure of this also, that a good many people do not try as hard as they might. The longer I live, the more I am convinced that brainwork, and making one's business a constant study, both day and night, has more to do with success than almost any thing else. I see a world of people around me who stumble along thoughtlessly and indifferently. God's gifts are rushing past them in every direction. In fact, they oftentimes stumble over them; and when you call their attention to it they deliberately inform you they have not noticed or have not seen any thing of the sort which you describe. And then I think of the text, "Knock, and it shall be opened unto you; seek, and ye shall find." I see people all around me—not only boys but grown-up men—who have not any comprehension of what is going on around them. They tug away at grievous burdens. An empty wagon is going in the same direction, but they do not see it, and never will see it; and sometimes it transpires that the empty wagon belongs to the very man they are working for, and this very man is anxiously waiting for them to hurry up.

At Lake Helen I made a very brief call on our good friend G. W. Webster. In his doorway I found guavas perfectly protected through the freezes, by being simply bent down and covered with straw and leaves, and afterward with a bank of dirt. In the same way he had saved some choice varieties of the Japan

persimmons. During the previous season he had produced specimens weighing 18 ounces, and $4\frac{1}{4}$ inches in diameter. These great luscious fruits, without seed or core, readily sold at a nickel apiece; and a persimmon-tree will bear more fruit on a given expanse of limb than any other fruit-tree I ever saw or heard of; that is, if you hold up the branches so the weight of the fruit will not break the tree to pieces.

OUR FOOD AND DRINK: ITS RELATION TO DISEASE.

THE SALISBURY METHOD OF MANAGING DISEASE.

Prove thy servants, I beseech thee, ten days; and let them give us pulse to eat, and water to drink, then let our countenances be looked upon.—DAN. 1: 12, 13.

And in all matters of wisdom and understanding, that the king inquired of them, he found them ten times better than all the magicians and astrologers that were in all his realm.—DAN. 1: 20.

To him that overcometh will I grant to sit with me in my throne.—REV. 3: 21.

During the convention in St. Joseph, Mo., last October, as you may remember, Ernest was left at home to look after business, in the absence of myself and Mr. Calvert. In a very few days, however, his health failed; and from that time on he seemed to be the unfortunate victim of grip, nervous chills, or something that the doctors hardly knew what to do with. One physician after another was called; but in spite of them all he seemed to be going into a decline. Even wheel-riding did not seem to bring him up as formerly, principally from the fact that he could not stand the wind. Even a moderate breeze gave him chills, neuralgia, etc.; and when the wind was in the north or northeast he was absolutely obliged to stay indoors; and a good deal of the time he could only lie on the sofa or wait for a still day. A good many of us settled down to the opinion that it was only another phase of that terrible disease which has been called the "grip." You may remember that, for three or four years past, I have been battling with something similar a good deal of the time, no matter whether I was in California, Ohio, or even down in sunny Florida. In my case the general decision was that it was in consequence of overwork; besides, I was getting pretty well along in life; but for a young man only a little over thirty, it seemed very strange, and withal very sad, that he should, as it were, "play out" right almost in his youth. Of course, much speculating was done in regard to this, that, and the other remedy. Different localities were talked about, and various sanitariums.

As some of the clerks in the office, and one of the teachers in our Medina schools, had been very successful with what is called the Salisbury treatment, or lean-meat diet, this was talked about more or less. Perhaps I might here devote a little time to an explanation. In our little circular in regard to the water cure applied internally, occurs the following sentence:

At different times the use of water in large quantities, taken into the system by way of the mouth, has had its advocates. Dr. Salisbury has for many years been accomplishing a good deal by "feeding" his patients on hot water.

But it seems that Dr. Salisbury or some of his friends ran across this; for in GLEANINGS for July 1, 1891, occurs the following:

DR. SALISBURY'S METHOD OF TREATING DISEASE, AND HIS USE OF HOT WATER.

MR. Root:—In your article, "A New Method of Treating Disease Without Medicine," in GLEAN-

INGS of March 1, there is a brief allusion to Dr. Salisbury's method, which is somewhat inaccurate. It is quite true that the doctor has accomplished and is still accomplishing much for suffering humanity, but he doesn't feed his patients on hot water. In his system the hot water is used solely for flushing the stomach and intestines, cleansing the former from slimy, pasty growths, which interfere with good digestion, and the latter from feculent deposits. To feed his patients, the doctor prescribes beef—lean steak, free from fat and gristle, reduced to a mince meat in a chopper, and then pressed into cakes or meat balls, and then broiled. According to Dr. Salisbury's theory, man is two-thirds carnivorous and one-third herbivorous; and his food should follow the same proportion. In some countries—India for example—the people, in the course of generations, have become herbivorous, and are able to live on a purely vegetable diet; but, few people can digest a purely vegetable or farinaceous diet in the United States. The doctor holds that most diseases are caused by a long course of eating improper foods which ferment in the stomach or bowels, and do not properly digest. His remedy is, first, to wash away offending and offensive matters by taking a pint or more of hot water at about a temperature of 110°, an hour before each meal, and the same interval before bedtime. Then he prescribes an exclusive meat diet, or as nearly exclusive as the patient can take it, forbidding sugary, starchy foods, and any thing prone to easy fermentation. Medicine is given, if necessary to help digestion. With good digestion the system begins to make good blood; and with a supply of good blood, all the organs of the body perform their functions well, and normal health is restored. This, of course, is not done in a day, for nature works slowly, and the result of a long course of wrong living can not be corrected by a short course of right living. In the case of serious diseases, like, for instance, consumption, it takes probably a year or two of treatment to get thoroughly well; but the improvement usually begins at once; and the end, if slow, is pretty certain.

The doctor's plan, you see, differs from the one you describe, in that it is more extensive—flushing the whole of the internal man, and not simply the colon, though the latter is good so far as it goes—and more natural.

It may interest some of your readers to know that Dr. Salisbury is an Ohio man, hailing, I believe, from Cleveland, though now living in New York, at 170 W. 59th St. E. CONNOLLY.

New York, March 7, 1891.

Our readers may remember that, in my reply to the above letter, I expressed some doubt in regard to the absolute necessity of coming down to a pure meat diet. I did it, notwithstanding Dr. Salisbury, some twenty-five years before that, brought me out of what might be called a rather precarious state of health resulting from too close application to the office.

Well, after Ernest had become a good deal discouraged, the rest of us as well as himself decided he ought to go down to Cleveland and see Dr. Lewis, who now represents the Salisbury method in that city.* For long weeks his diet was lean meat almost exclusively; but just about when I began to fear that he was suffering, and depriving himself needlessly, especially after being reduced in flesh from 140 to 120 lbs., I noticed that he was gradually getting indifferent to wind or weather. He would even stand out in his dooryard, with the thinnest clothing on, while I was muffled up in woolen clothes and sealskin cap, with a big flannel pad across my chest, etc. In spite of all this padding and clothing, however, I could not stand the north wind. While superintending the laying of some water-pipes I caught the toothache; then neuralgia all over my face; then earache, with chills accompanying,

and I was feeling pretty miserable. He and the rest of the children, including Mrs. Root, began to suggest the old Salisbury treatment. But I dreaded even the thought of it. I told Ernest that, when I came into his home, one day, and smelled the broiling steak, so familiar in years gone by, I almost felt as if I could cry for him, if it would do any good.

Before I got over my attack of neuralgia, however, he came into our home one day, and found me leaning over a hot stove, bathing my face and teeth with physianthropic (see page 537), and shedding some bitter tears (on my own account), even in spite of myself. I told him it was just grip I got from that northeast wind. By the way, one day I noticed the thermometer registered 80 degrees in the shade, and I was bundled up as I have described, and still I was cold. "Where was the wheel?" do you ask? Well, could I have been spared to ride 20 miles or more on the wheel every day, or even every other day, I might have got along tolerably well; but there was one trouble I have frequently referred to, that even the wheel did not cure. It is a sort of chronic dysentery, accompanied by distress in the lower intestines, etc. I have mentioned one severe attack of it while I was in Florida. This latter trouble seemed to be gradually gaining ground. Now if you will pardon me for speaking so much of my ailments and troubles I will try to get on to a pleasanter theme.

Ernest urged that I should at least go and see Dr. Lewis, and have him look me over, examine my blood under the microscope, etc., and tell me what he thought. I did not propose to take the treatment, mind you, but I consented, just for the fun of the thing, to go and talk with the doctor. Well, the doctor said if my trouble went on I should soon have consumption of the bowels; or, to put it in plain terms that everybody can understand, he said that my disease was fast settling into a chronic case of "hog cholera." I do not suppose that he meant that I had been greedy in my eating. He admitted that, if I could be spared to ride the wheel, and take things easy, keeping clear of business, I might do very well without any treatment; but if, on the contrary, I would give my intestines a rest till they could be cured up, and then be careful as to what I ate, I might go on with business, and at 55 years of age be just in my prime for good downright hard work in the office or anywhere else.

"But how about the chills, neuralgia, etc., doctor?"

"These are a secondary matter—a result—a trifling thing, in fact. If you undertake the treatment we will have off that overcoat and fur cap in less than ten days."

"But, doctor, suppose the wind should be in the northeast?"

"I don't care where the wind is. In less than ten days we can have you wearing ordinary clothing."

"Why, look here, doctor, if you can get me rid of my chills and neuralgia and toothache and earache, so that I shall not need to bundle up when there is a brisk north wind, I will undergo almost every thing you say—for at least ten days, any way."

At the time, I fully intended to submit to the treatment ten days and no more; but the doctor and Ernest exchanged glances, however, and made preparations for a siege of about three weeks, as I afterward learned. The whole family were greatly pleased, and entered with much spirit and enthusiasm into the plans for getting papa well and strong. Let me explain a little more minutely right here the program that has been settled down on after

* Dr. J. M. Lewis was for ten years a partner of Salisbury; and he said to me, but a few days ago, that, in his opinion, Dr. S. has done more than any other man to get the whole medical fraternity out of the ruts and superstitions that have for ages hindered and cramped all progress.

the past twenty-five years of experimenting and study:

You go to the butcher's and get some of his very best round steak. Wait till he has sliced off the shoulder until he gets down to where the bone is small. Tell him to cut you a slice fully an inch thick. Now remove all fat, gristle, and every thing but lean meat. Get an Enterprise meat-grinder, small size, with recent improvements. Put the lean meat through three times; and then have it cooked on any good gridiron, or even with the five-cent wire meat-broilers, to be had in every counter store. The patient is to take the meat hot, just as it comes from the fire. Season with salt, pepper, and a little butter. Decide by experiment how much you can eat and digest thoroughly, and have that fixed quantity at every meal. I began with $6\frac{1}{2}$ ounces three times a day. Six ounces would have been hardly enough, and 7 ounces is a little too much. Thus you see there is no possible overloading of the stomach or digestive organs. As you progress, increase the amount gradually until you can take 10, 12, and even up to 16 ounces or more. Your meat is to be taken at regular hours. You probably will not forget when it is time to have your regular rations.

I soon found that my weakest spell was in the morning, because I got up a little after five and start several kinds of business before John and Ernest get around. On this account I have three ounces of beef at 10 o'clock, besides my three other rations. I go to bed at half-past 8 or 9, and sleep soundly—more so than I ever did before—until Mrs. Root wakes me at 10 o'clock. This 10 o'clock meal prevents me from getting faint in the morning before my regular meal at half-past 6. Now, please notice I do not have a crumb of bread, a particle of fruit or vegetables—no sugar, not a drop of milk in the half-cup of tea I am permitted to have with my meat. Right here I presume a part of my readers—may be nine-tenths of them—will say, "Oh! get out with your lean-meat diet to the exclusion of fruits, milk, and honey. Brother Root, we shall think you are the worst crank there is going if you continue to talk such nonsense." Hold steady, friends. If you are well and warm, and your food agrees with you, by all means eat the fruit and milk and honey, and thank God for them. If you are a dyspeptic, and especially wedded to nervous chills as I have been, I think you had better listen a little further. Lean meat is almost the only article of food that is digested entirely in the stomach. Look it up in your physiologies, if you think I am wrong. Where one has chronic dyspepsia, or a tendency toward chronic dysentery, his life may depend upon giving the lower intestines a rest. Vacations are very fashionable nowadays; in fact, they seem to be the rage almost everywhere. Why not give your digestive apparatus a vacation, or at least that part of it? I believe the thing is entirely possible. From the very first meal of this pulverized or rasped beef, as you might term it, my bowels began to feel rested. The hubbub and turmoil and distress stopped *right away*. In fact, for weeks past I should not have known I had any "insides" at all, so far as any sensation is concerned. The effect was really marvelous. I should not have thought it possible had I not tried it.

Let us now consider the drink part. I will repeat a part of the conversation the doctor and I had together.

"Why, doctor, I did not know you restricted your patients to the amount of lean beef they must eat. Dr. Salisbury used to tell me to eat a pound at a meal if I could; and I did succeed in eating a pound just as it comes from the butcher."

"Well, that might have done for you 25 years ago, but I think we have a better way now. You must not overeat, even with lean meat."

"But, doctor, I can have all the pure water I want to drink, can I not?"

"You can at stated periods. Three hours after any or every meal you may drink all the water you choose, but no cold water. Take it as hot as you can drink it conveniently. I should like to have you drink at least a pint—a quart would be better. The first thing to be done is to wash and cleanse and rinse your whole digestive apparatus. You want to bathe it out thoroughly every day, and four times every day if you can. If you can not have your hot water within $2\frac{1}{2}$ or 3 hours after each meal, and, say, an hour or an hour and a half before getting a meal, then skip it—don't have it at all. Your beefsteak will be digested and out of the stomach in from $2\frac{1}{2}$ to 3 hours. If you drink the water sooner, or drink very much during your meals, you will dilute the gastric juice, and hinder or stop digestion. Cold water especially will do this at your stage of the disease. You may have noticed it."

I told him that I had for years been deciding I could not drink cold water during mealtime; and I felt better to take almost no liquid at all. I had also learned that water (especially ice water) within, say, an hour after my meals, stopped digestion, and gave me much distress. I told him how often I had been parched with thirst during attacks of dysentery, but did not dare to drink a drop, as it was so sure to distress me. He told me I would find at such times I could drink hot water—as hot as it could be taken into the mouth—without any distress; and I then remembered that, while in Florida, a friend persuaded me to try drinking a good lot of hot water as a remedy. Strangely enough it gave me almost immediate relief.

You may be a little surprised to find that one very soon learns to relish hot water. At first I thought it would be more palatable with acid phosphate or a little ginger, or something of that kind, added to give it flavor; but now I greatly enjoy my pint or quart of pure soft hot water four times a day. I take the first dose at five o'clock in the morning, so as to get it an hour and a half before my breakfast.

In a recent number of the *Ohio Farmer* a writer suggests that horses will do a greater amount of work if a heavy watering is given at 10 o'clock in the forenoon, and between 3 and 4 in the afternoon. He says horses so treated will keep in flesh and strength with less food. I suppose another watering the last thing at night would be in proper order. Give them a little between times if you choose; but let them do the main part of their drinking, as nearly as you can, midway between feeding-times—leaning, of course, a little toward the coming feed, and a little further from the last one. By the way, this hot-water treatment is now so generally known and adopted by people in poor health that perhaps this explanation is hardly needed. I thought it a little hard when the doctor said I must not drink at springs and wells on my wheel-rides. If I continue riding, perhaps these drinks of even cold water would do but very little harm; but I am inclined to think now that hot water at pretty nearly the times mentioned would be much safer and better. Oh! I forgot to mention that, in about four days, I began to dispense with my extra clothing, and the neuralgia and cold in my head suddenly disappeared in a very unexpected way. In a week I was around in my shirtsleeves; in ten days I put on thinner clothing, and dispensed with the flannel chest-protector that I

had worn winter and summer almost constantly for three or four years.

You will recollect that, in our text, Daniel asked of his keeper that he and his friends might be proved ten days. Thus we have Bible authority to the effect that ten days of pure simple diet may bring about a material and perceptible change in one's health. When Dr. Lewis said he would cure my chronic chills in *ten days* I don't suppose he thought of Daniel and my text. Let me digress a little.

Some years ago a writer in the *Scientific American*—and I believe the article was also copied in various papers—took the ground that colds are caused by disordered digestion; and the remarkable thing about the article was that the writer said that, when his diet was right (and I presume that included drink as well), you could not make him "catch cold." He even went so far as to prove his position by public tests. He slept in damp bedding; he went out till drenched through with rain, and then stood in a draft until his teeth chattered; went about with wet feet—did every thing, in fact, that old established rules have laid down as particularly dangerous in this line, but he took no cold at all. He got cold, of course, and suffered for the time being; but when he was warmed up again, no after-consequences followed. This writer has since published a book on health, and I have studied it with much interest, but I can not lay my hand on it now. He did not prescribe the lean-meat diet particularly; but he advised such a course of eating and drinking as to seem to be conducive to wholesome digestion. Well, for years past, whenever I came in to sit down at the table, the doors and windows would have to be closed a good deal of the time in hot weather, or I could not stand it. Mrs. Root and the children have suffered for want of the (to them) delicious cooling breezes, just because papa could not stand a draft; but now I am rejoicing, during my fourth week with the treatment, in being able to wear thinner clothing than any of them; and I can stand as much draft as anybody I know of, or more. Windy days that have been, in fact, my deadly enemy, now seem delicious and nice; and it really seems as if I couldn't catch cold, even if I tried to. Of course, I am not positive that this thing will continue; but if it does, it is worth to me a big lot, not only for myself, but that I may point out the way of escape to others who are suffering from hay fever, neuralgia, and feeble vitality in a thousand and one directions.

You may remember that, in my pamphlet on the internal water cure, I suggested that the too frequent use of the hot-water injections is apt to remove the food before the process of digestion is complete; that in this case I had discovered there was a marked loss of strength, from which I inferred that the lower intestines, and may be even the lower colon, perform a part in the operation of digesting the food, and take from it something important, and possessing much nutriment; and that a loss of this results in a loss of strength. Now, letting the stomach do all the work, and leaving the intestines and colon to "take a vacation," as I have expressed it, produces just this result. In a few days you find yourself feeling remarkably clean and light, and perhaps rather "flat," and at the same time you find your strength oozing out, and a faintness or weakness you never felt before, taking its place. I told the doctor I felt as if I imagined Samson did when they had cut off his hair. This is the discouraging period in the treatment. I suppose a good many patients turn about and go back, as did Christian's companion in *Pilgrim's Progress*. Be of good cheer, friends; do not be in haste to give up. Prof. Cook once told us in a lecture, that, so great is

the effort nature will make to sustain life, a man could have his whole stomach cut out; and if the connecting tubes were hitched together, the other organs would do their work until nature could manufacture another stomach. We often see the same thing in nature. When the animal economy begins to understand the different order of things, the stomach pretty soon learns to do double service, just as a blind man sees with his ears, and just as a deaf man hears with his eyes. When this lassitude and weakness comes on, lie down and rest. Take it patiently, and it will often go away in a short time. My remedy is a nap, and my naps are as regular before dinner and supper as the meals themselves—that is, when at home and at work. I have recently found that my wheel will usually drive off this weakness.

A few days ago I asked the doctor if he expected me to be able to ride the wheel on lean meat alone.

"Why, bless your heart, yes. If you can hold out until we are out of the woods you will ride your wheel with muscles of iron, and muscles that almost know not fatigue."

I have now been almost four weeks under the treatment. For two weeks I felt as if I had not strength to ride more than half a mile. Three days ago I tried a couple of miles; then about five miles; and day before yesterday (Aug. 15), about eight miles; and last evening, the 16th (the mercury had been in the 90's all day), I rode *twenty* miles after supper; and I came home just running up the hills, because I enjoyed it.

Now just a word in regard to our texts and the moral of the case. I never before heard anybody so emphatic against the use of wine and beer as was Dr. Lewis. He said that, if alcoholic stimulants were really needed, it is better to use pure whisky, brandy, or even alcohol itself, and not beer or wine, that can only start a ferment in the bowels, when such ferments are already the cause of the greater part of the sickness of the present day.*

Again, the person who has learned to forego luscious fruits and vegetables, and hold right on steady, with nothing to vary the monotony of the invariable lean meat, will not find it difficult to control himself in every other way. The mental and spiritual drill that one learns from such tremendous self-denial ought to last him through life. The "pulse" mentioned in the book of Daniel was probably not lean meat,

*Thousands of people are probably suffering and dying almost every day by a kind of slow starvation, from the fact that their food ferments and sours in the digestive apparatus, instead of furnishing good healthy material for the blood to build up the system. In fact, the digestive apparatus gets to be a sort of brewery, manufacturing beer and carbonic-acid gas from every thing taken into the stomach, especially food that contains starch and sugar. Most of you have had occasional experiences in this line with disordered stomach and bowels. Well, there are still doctors left who will tell patients suffering in this way to drink *beer* or *ale*, to give them *strength*. Adding beer and fermented liquors when the stomach and intestines are a regular brewery already? What sense or what consistency is there in that? And this very Hires' root beer, that is puffed so much, even in our best papers and periodicals, is only a milder mixture of yeast and sugar. Read the directions—3 lbs. of sugar to a gallon, and then a great lot of yeast to make it ferment. And, by the way, some of the Hires' root beer, when the yeast is tiptop and every thing just right to make "good beer," contains enough alcohol to make one who is sensitive to its influence feel its effect very distinctly. I suppose, if the W. C. T. U. should undertake to make a protest in this direction they would stir up a hornets' nest. Be of good cheer, friends. Dr. Salisbury and Dr. Lewis have been for years protesting and proclaiming cautions against this very thing.

but it was a pure simple diet. Be that as it may, the thing that Daniel and his friends objected to (wine) is the very thing Dr. Lewis so positively forbids. Very likely they had pulse to eat and water to drink, each at regular intervals. With such treatment there is no such thing as overloading the stomach. There is no question nor speculation as to whether this, that, or the other is good for you or causes you distress. If our people had perfect control of all their appetites, their tastes, and their passions, this world of ours would be a heaven below. Do you doubt it? Read the last of my three texts—that grand Bible promise: “To him that overcometh, to him will I grant to sit with me in my throne.”

A friend said to me only yesterday, “Mr. Root, I have been sick for two days, and it is a good deal your fault.”

Of course, this was pleasantry. He went on: “I knew I ought not to eat watermelons; but we had one that was so very nice I could not resist the temptation, but kept on eating. Then we had some of that new kind of beans of yours—the Best of All—and they were so exceedingly luscious, and hit the spot so exactly, I ate more of them than I ought to. It took me about two days, and required some medicine, before I was straightened out again.”

How many such cases do you suppose there are in this world of ours? Now, the point is, one who has gone through this ordeal that I have pointed out to you would not be very likely to lose his health, and get back again into the slough of despond. I remembered so well my experience during those 18 weeks 25 years ago that I could thank God for my daily bread at almost every meal since that time with a new understanding of the matter. We never prize God's blessings until we have been deprived of them. We never prize health until we have had some experience with sickness. These bodies of ours are a sacred charge intrusted to us by the great Father of all, and he expects us to take good care of them. He expects reason to hold in check the passions and the appetites under all circumstances whatever. If we disregard Reason, and set her admonitions at naught, then we have got to go back and live a life of self-sacrifice, and even total abstinence from many things that we might otherwise enjoy with impunity.

Is it really a method of healing diseases without medicine? To a certain extent I think it is; but Dr. Lewis told me it would be very much better if the matter were looked after under the charge of the regular family physician. He said the family physician could engineer the patient clear through without any difficulty at all if he only *would*. The difficulty is, he may not himself have faith in it; and then, again, it is not a very pleasant or taking method of treating disease. The average physician knows this perfectly well, from the experience he has had in undertaking to get his patients to leave off tobacco, tea, and coffee, extravagant use of sweets, etc. Like the faithful pastor who preaches plain truth, it may sometimes cut off his salary a trifle, for the time being. Again, the family doctor, to obtain the best results, should be able to examine the blood, the urine, the secretions, etc. The principal difficulty to be met is that of constipation, which is almost sure to follow. Now, I have spoken exceedingly plain before on these pages in regard to this matter of curing disease without medicine, and I am sure our friends—at least the ailing ones—will pardon me right here if I speak so that I may be clearly understood in this matter. With the pure lean-meat diet there is no need of a movement

of the bowels oftener than two or three times in a week.* On one occasion, when I had gone four days, Ernest took the responsibility of giving me one of his favorite pills. He asked Dr. Lewis afterward what he thought about it, and the latter replied: “Oh! no, no! Pills may do for *you*, but no pills for your father.”

You see, after my tendency to chronic dysentery, taking pills is like waking up the baby after you have walked the floor with her for hours to get her to sleep.

“Well, doctor, if I can not take pills or physic, what am I to do?”

“Why, just take a tablespoonful of castor-oil before you go to bed. If one tablespoonful does not answer, try two. Castor-oil will lubricate and soothe those long-suffering intestines, rather than rasp them up again as physic does.”

Now, if you call castor-oil medicine, then my talk to-day is not exactly doctoring without medicine. I believe that, with many patients, both Lewis and Salisbury are in the habit of giving some sort of tonic before the meal, and a preparation of pepsin so as to assist digestion after the meal. Ordinarily, pure fresh lean meat and pure water are all that is needed—“pulse to eat, and water to drink;” and, dear reader, if you will prove it ten days, as did Daniel and his little band, I think you may not only be wiser and brighter, and clearer in intellect, but you may also see your way out of troubles that have followed you for years.

Just a word, before closing, in regard to the manner of cooking this ground-up beefsteak. It must not be fried or browned, for that spoils its digestibility. It should be broiled, and the broiling must be done just right, so it will be juicy, soft, and rich. There is on Euclid St., Cleveland, O., a place called the “diet-house,” where they have made it their business to cook meat for the Salisbury patients for 25 years or more. As they cook it, it is about the most delicious and strength-giving article of food I ever tasted. After eating 10 ounces a few days ago, I felt as well satisfied as if I had had the best meal that could be furnished in that great city. I bought some of the very same beef, of the very same butcher; but after I got home we found it was quite a little piece of skill to cook it exactly as they did at the diet-house. But Ernest finally mastered it. The secret is in having it cooked alike all the way through, and be sure not to have any portion of it overdone. If right, it will be juicy, soft, and toothsome, requiring very little chewing; and from it strength and energy come very quickly to the oftentimes weak and hungry patient.

*May I in this little footnote be pardoned for speaking still more plainly? I am now in my fourth week, and my bowels move without any castor-oil or anything else but a mild hot-water injection, without the least bit of pain; and, most astonishing of all, the small amount of residue left after perfect digestion is absolutely *without smell*. Ever since I was a child I have wondered again and again why it was that human beings should necessarily have any thing to do with almost the foulest substance that one can well imagine. Is it right, and is it God's will, that we who are called the temples of the Holy Ghost should have any thing about us at any time so offensive and repulsive to every refined thought and feeling? and it rejoices my heart, to know that it is even possible for one to have a sweet breath, a sweet-smelling body, and to be sweet and clean always and everywhere. You see this talk is only a continuation of my talk years ago under the head of my favorite little text, “Wash ye, make you clean.”

ALFALFA—ON THE WHEEL.

There is not going to be much "On the Wheel" in this issue, for the beefsteak diet has sort o' knocked it out. But that trip of twenty miles that I made after supper was to see a little patch of alfalfa right here in Medina Co., that stood a couple of feet high, on the 16th of August, and it has already given two heavy cuttings this season. The owner said it stood fully three feet high when it was cut, and gave the most feed, and about the best feed, of any thing he had ever taken from a like piece of ground. The seed was put in two years ago in June, therefore it had stood two of our Ohio winters, and the last one, perhaps, the worst in fifty years. He said that, after our spring frosts, he thought at one time it was entirely killed; but finally he could see a little green shoot here and there, and finally it all started, and grew and grew. This is on ordinary Medina clay soil, perhaps with a little tendency toward sand or gravel. But if one man can make such a success as that on a quarter of an acre, why can't somebody else do as well? I confess it has given me the alfalfa fever already.

WATER-WITCHING.

QUITE a good many communications have come in, and several have invited me to come and see the genuineness of the thing proved. One man has been on our grounds. It is *barely possible* there is some science about it, but there is certainly a good deal of folly and superstition mixed up with it. For instance, one friend claims it is due to electrical attraction, and says that, if the peach-tree branch be wrapped in a silk handkerchief, it will not work. Those versed in electrical attraction or magnetic attraction will at once recognize that this is a mistake. A silk handkerchief has no power whatever over magnetic attraction, as any one can readily prove with a cheap magnet and a common pocket-compass. Again, another friend assures us that blindfolding the operator will not answer, for he says the switch will not indicate water unless the operator can use his eyes and see his switch. We have heard of human beings who would not work unless you kept your eye on them; but I do not know that I ever before heard of a *machine* that refused to "go" unless the owner kept it all the time exactly under his sight. You see this runs us into the occult sciences again. Clairvoyance is not yet recognized as a force in nature or as one of the sciences. A. I. R.

Special Notices.

GARDENING FOR SEPTEMBER

We are now having rains quite frequently; and on ground that is kept mellowed up, they seem sufficient; but where the ground has once become baked and hard, so the water runs off, the drouth seems to continue; and on such ground as this, trees and small fruits are still dying. The water has not yet got down to their roots.

Our Best of All snap bean is proving to be true to name as a shell bean. In fact, some of the friends pronounce it ahead of any of the big limas. The only trouble with it is, it is a colored bean; but when I was a juvenile I remember of eating baked beans at my grandmother's, said beans being spotted or speckled; and it seems to me they were more delicious and toothsome than any thing of the bean family I have tasted since. And this Best of All colored bean looks very much like those spotted beans of olden times that used to please us so much when we were children.

On looking the matter up, I find that, during a favorable fall, turnips may do quite well, even when sown in September. And, by the way, a few

days ago, when we were sowing crimson clover in the corn, with a little sprinkling of turnip seed among the clover, a visitor who was present clapped his hand on his thigh and declared:

"Oh dear me! why didn't I think to mix in just a little turnip seed when I sowed that crimson clover yesterday among the sweet corn?"

Now is the time to sow lettuce seed to be transferred later into the greenhouse. Sow the seed and push along the plants out in the open air, exactly as you would in the spring. Move them into the greenhouse just before they might receive injury outdoors.

The latter part of this month is the time to sow cabbage for cold-frame plants; and if you have got the hang of it you can have cold-frame onion-plants in the same way. We make it succeed to perfection. The onions will stand fully as much frost as the cabbage.

Our new Craig Seedling potato is still booming, and promises something almost unheard of. In answer to many inquiries in regard to the forthcoming prices of potatoes for fall shipment, I would reply that the matter is under consideration, and we shall be able to give reasonable rates, probably, in our next issue. If you want to send in your order we will guarantee that the rates all around will be a little lower, any way, than last year.

Scarlet Globe, Early Frame, and Rose winter radishes will all succeed if put into the ground now; and this is also the principal month for sowing spinach. For prices see our fall price list just out.

All orders for strawberry-plants are filled, and we are ready to put them up and send them off the day the order is received, excepting the Parker Earle and Edgar Queen.

Our vineless yam, or bunch sweet potato, is also promising a fine crop, even on our Medina clay. I tell you, a nice thrifty patch of them looks handsome, and the potatoes are said to be superior to the average sweet potato in the market—no vines to bother. The tops stand right up like an ordinary Irish potato.

To those who wish to try crimson or scarlet clover during the month of September, I may say we are prepared to send 1 lb. by mail for 20 cts.; 3 lbs. for 50 cts.; all postpaid. By freight or express we can furnish a peck for 90 cts.; $\frac{1}{2}$ bushel, \$1.75; bushel, \$3.40; two-bushel sack, \$6.50, package included. And, best of all, all the above is American home-grown seed—a lot that we recently ran across. The price is a little lower, as you will see, because it is getting to be a little late in northern localities; that is, it would be a little late in case we have a severe winter.

Seven-top turnip will grow all right if sown this month. Remember, it does not have a root, but only foliage for greens, and "posies for bees," early in the spring.

Last of all, now is the time to put out American Pearl onion-seeds. For prices see last issue.

KIND WORDS FROM OUR CUSTOMERS.

I don't see how I could get along without GLEANINGS. L. D. COFFMAN.

Clark, W. Va., June 17.

The Crane smoker I ordered arrived in good shape on the 28th, and I had an opportunity of trying it the following day. I found it equal to all it claims. Jefferson City, Mo., July 1. F. M. SELLERS.

The A. I. Root Co.:—Bees are doing well at present, but we are needing rain very much. I like GLEANINGS. It just suits me in every department. As long as you maintain the present standard of your journal you can count me as a subscriber.

Patronville, Ind., June 15, 1895. R. B. LARKIN.

The A. I. Root Co.:—Accept thanks for the generous number of sample copies you sent me for ten cents. I read them with some interest, some benefit, and yet I am left somewhat "rattled" over the various discussions on the different kinds of hives, frames, bees, etc. On one point I am certain: Men don't gather "flgs from thistles," and bees can't gather honey from fence-rails; they must have pasture, and that is rather scarce around here at present. D. MCCARTHY.

New Haven, Ind., Aug. 1, 1895.

QUEENS

By Return Mail.

Untested daughters of one of the best imported queen mothers I ever owned, mated to drones of the best of imported stock from a different source, 40c each. Also golden queens of the Doolittle strain same price. Safe arrival and satisfaction guaranteed. Please don't send stamps. No disease.

L. H. ROBEY, Worthington, W. Va.

Gove's INVALID-BED Attachment.

A priceless boon to the sick and their attendant. Positive in action. A child can operate it. Circular free. Patents pending.

REFERENCES:

The A. I. Root Co., Medina, Ohio.
W. B. Croft, M. D., Medina, Ohio.
C. D. Freeman, M. D., Medina, Ohio.
G. J. Damon, M. D., Medina, Ohio.

G. H. GOVE, Inventor, Medina, Medina Co., O.

QUEENS!

A few fine breeders producing straight 5-banded workers uniform in color and bound to please, because of their general good qualities, at \$2.50 each. The same offer made for August still holds good for the month of Sept.; that is, two golden or leather queens to new customers for \$1.00.

W. H. LAWS, Lavaca, Ark.

Promptness is What Counts.

Honey-jars, Shipping-cases, and every thing that bee-keepers use. Root's Goods at Root's Prices, and the Best Shipping-point in the Country. Dealers in Honey and Beeswax. Catalog free.

WALTER S. POWDER,
162 Massachusetts Ave., Indianapolis, Ind.



IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians**, the result of 16 years' careful breeding.

Dr. H. B. Long, Harrodsburg, Ky., says: "I have had the pleasure of seeing many fine strains of bees, yet I have never seen such industrious, energetic bees. I must express my admiration for your success as a bee propagator."

Reduced Prices: Warranted queens, 70c; 3 for \$1.95; 1 doz., \$5.00. Untested, 60c; 10 or more, 50c each. **Select Warranted or Untested, 20c each extra.** Select Tested Breeders, \$2.00 each.

Those who have never dealt with me, I refer to A. I. Root, who has purchased of me 808 queens. Circular free.

J. P. MOORE, Morgan, Pendleton Co., Ky.

In responding to this advertisement mention GLEANINGS

BEGINNERS.

Beginners should have a copy of the Amateur Bee-keeper, a 70-page book by Prof. J. W. Rouse. Price 25 cents; if sent by mail, 28c. The little book and the Progressive Bee-keeper (a live progressive 28-page monthly journal) one year, 65c. Address any first-class dealer, or

LEAHY MFG. CO., HIGGINSVILLE, MO.

TAKE NOTICE!

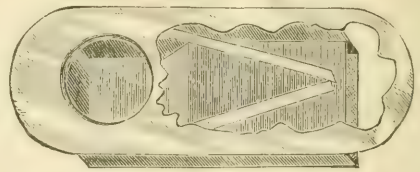
BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & LYON MFG. CO.,

St. Louis

New London, Wis.

Please mention GLEANINGS. 21-8db

Advantages of Bee-Escapes.



No sweat steals down the heated cheeks and aching back of the bee-keeper as the result of standing in the hot sun puffing, blowing, smoking, and brushing bees; no time is wasted in these disagreeable operations; and no stings received in resentment of such treatment; the honey is secured free from black or even the taint of smoke; the cappings are not injured by the gnawings of bees; and robbers stand no show whatever. If there are any broken burr-combs they are cleaned up by the bees inside the hive, before the honey is removed. **Leading Bee-keepers use the Porter Escape**, and say that without a trial it is impossible to realize the amount of vexatious, annoying, disagreeable work that it saves. The cost is only 20 cts. each, or \$2.25 per doz. As in the past, this escape is manufactured by the Porters, but The A. I. Root Co. has secured control of the sale for this country. Order of your dealer or of

THE A. I. ROOT CO., Medina, Ohio.

Stingless Bees!

See page 525, GLEANINGS, June, 1895.
H. Alley, Wenham, Mass.

Queens, Either 3 or 5 Banded.

60c each; 6 for \$3.25. These low prices are to induce you to try them. Catalog free.

CHAS. H. THIES, Steeleville, Ill.

Don't Be Afraid to Buy



those fine, tested Italian queens I am offering for 65 cents, just *because* I offer them so cheap. It is not on account of any inferiority that I sell them so cheap, but because I replace, every year, all of my queens in over one hundred colonies, run for honey production, and what I get for the old queens I consider just like finding. A good many are sold already, but there is a fine lot on hand yet, equal to any in the country. A few misnamed ones at 30 cts. each.

T. H. KLOER, Terre Haute, Ind.

Please mention this paper.

3=Banded TESTED ITALIAN Queens,

from my own imported queens, \$1.00 each.

Max Brauer, Beeville, Bee Co., Tex.

In responding to this advertisement mention GLEANINGS.

W. O. Victor, of Wharton, Tex., took

45,000 Lbs. of Honey in 1894.

He offers Italian Queens—good, old-style honey-queens—untested, first order, to any address, at 50c each. Also bees in any quantity; 450 colonies to draw from. **Root's goods constantly in stock.** Prices to suit the times. Buy near home, and save freight.

«MONEY-MAKERS»

Are a strain of business Italians that winter in the cold North, and are ready for business, with a bushel of bees, when the flowers bloom. They are gentle and industrious. Queens, warranted pure, in June. Each, \$1.00; six, \$5.00; doz., \$9.00. Safe arrival and satisfaction guaranteed. Never had any disease.

Address E. F. QUIGLEY, UNIONVILLE, MO.

In responding to this advertisement mention GLEANINGS.

Bicycles



I have done an extensive business in bicycles this summer, and have now on hand a number of second-hand bicycles, taken in trade or used as samples. Either these or new bicycles I will sell for the lowest cash prices, or will take honey or beeswax in exchange. Send for list.

J. A. GREEN, Ottawa, Ill.

**Warranted
95 per cent
of Queens
Purely Mated,**

at 50 cents each; 6 for \$2.75, or \$5 00 per dozen, from a Golden breeder obtained of Doolittle, which he selected and tested out of 1000 queens, for his own special use, or from one of A. I. Root's very best imported breeders. Bees from my queens are gentle, and excellent honey-gatherers. No disease.

Ask for free circular. Satisfaction and safe delivery guaranteed.

H. G. QUIRIN, Bellevue, Ohio.

5 to 10 Per cent Discount on Bees and Supplies.

WAX WANTED.

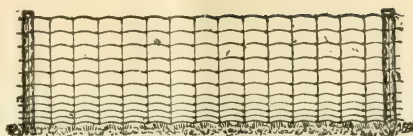
I. J. STRINGHAM, NEW YORK.
105 Park Place.

In writing advertisers mention this paper.

QUEENS!

A few fine breeders producing straight 5-banded workers uniform in color and bound to please, because of their general good qualities, at \$2.50 each. The same offer made for August still holds good for the month of Sept.: that is, two golden or leather queens to new customers for \$1.00.

W. H. LAWS, Lavaca, Ark.



Another Wonderful Cure.

Ever since my "calfhood" I had been in trouble, inherited a tendency to "breaking out," and a few attacks I have often been confined to the stable for weeks. Also troubled with a ringing sensation in my nose, and a feeling as if stuck with pitchforks by angry men. I was threatened with "Bologna treatment," but a friend recommended **Elasticity** as compounded by the Page Woven Wire Fence Co., Adrian, Mich. One dose worked a complete cure, and I can freely recommend it in all similar cases.

Yours truly, Durham Bull.

 In responding to this advertisement mention GLEANINGS

ROOT'S GOODS at
ROOT'S PRICES
FOR THE WEST.

Order of us and save freight. Goods at wholesale and retail. A full line of Dovetailed Hives, Sections, Foundation, Extractors, and every thing else of the latest and best.

JOSEPH NYSEWANDER, Des Moines, Iowa.



In responding to this advertisement mention GLEANINGS

GOLDEN Bred for business. Un-
tested, 65 cents **QUEENS**

each; 6 for \$3.25. Tested, \$1.00 each. Fine breeders, \$2.00 each extra. Select straight 5-banded breeding-queens, \$4.00 each. To all new customers one **GOLDEN QUEEN** for 50 cts. Satisfaction and safe arrival guaranteed.

E. A. SEELEY, Bloomer, Ark.
y Order office, Lavaca, Ark. 7-20

13* In responding to this advertisement mention GLEASINGS



ONE MAN WITH THE UNION COMBINATION SAW

Can do the work of four men using hand tools, in Ripping, Cutting off, Mitering, Rabbeting, Grooving, Gaining, Dadoing, Edging-up, Jointing Stuff, etc. Full Line of Foot and Hand Power Machinery. Sold on Trial. Catalog Free. 1-2461

SENECA FALLS MFG. CO.,
44 Water St., Seneca Falls, N.Y.

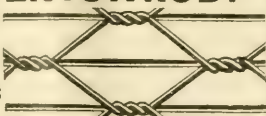
☛ In responding to this advertisement mention GLEANING.

FENCE



Why pay 60 to 90c. a rod for fence when you can make the
BEST WOVEN WIRE FENCE ON EARTH
FOR 13 TO 20 CENTS A ROD?

Horse high, bull strong, pig
and chicken tight. A man
and boy can make from 40 to
60 rods a day. Over 50 styles.
Illustrated Catalogue Free.
KITSELMAN BROTHERS
Ridgeville, : Indiana.



HONEY COLUMN.

CITY MARKETS.

DENVER.—*Honey.* Our market is being well filled up with new honey, especially comb. There seems to be very little demand for extracted. We have been receiving quite a number of shipments for which we have been getting 10¢/lb. Our trade requires a No. 1 white grade, suitable for putting in our cartons. Extracted, No. 1 white, in 60-lb. cans (2 in a case), 6¢. Beeswax, 25.

R. K. & J. C. FRISBEE,
Denver, Col.

Aug. 27.

NEW YORK.—*Honey.* New crop is arriving; and while receipts from N. Y. State are light, we are getting a large supply from California. Received two cars choice comb from there, and have several more to follow. Demand is rather limited as yet on account of the warm weather. We quote: Fancy white, 1-lb. sections, 15¢/lb.; fair white, 1-lb. sections, 12¢/lb. No demand as yet for buckwheat or dark honey. Extracted is plentiful, especially California and southern. We quote: California, 5¢/lb. cts. per lb.; white clover and basswood, 6¢/lb. cts. per lb.; southern, 45¢/55¢. per gallon. Beeswax firm, and in fair demand at 28¢/29¢. per lb.

HILDRETH BROS. & SEGELKEN,
120-122 W. Broadway, N. Y.

CINCINNATI.—*Honey.*—Demand is lively for new extracted and comb honey. Arrivals are fair, but insufficient for the demand. Comb honey brings 14¢/15 for choice white. Extracted, 4¢/7. Demand is good for beeswax at 20¢/25 for good to choice yellow.

CHAS. F. MUTH & SON,
Cincinnati, O.

Sept. 10.

ALFALFA HONEY, very white, thick, and rich. Two 60-lb. cans at 7¢. Same, partly from cleome (tinted), 6¢. Samples, 8¢.

OLIVER FOSTER, Las Animas, Col.

FOR SALE.—White comb honey, 14 and 16¢, on board cars.

G. R. ROUTZAHN, Menallen, Pa.

ALFALFA IN ARIZONA.—We will sell you alfalfa honey F. O. B. Phoenix at 4½¢ in 1000-lb. lots or more. Less than 1000 lbs. at 5¢ in five-gallon cans. Car lots a specialty.

J. P. IVY,

Secretary Bee-keepers' Association,
Phoenix, Maricopa Co., Arizona.

WANTED.—To buy quantity lots of fancy comb honey.

B. WALKER, Evart, Mich.

BUFFALO, N. Y. Unsurpassed Honey Market
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 187fdb **and Prompt**

CHAS. ISRAEL & BROS.,

486, 488 & 490 Canal St., Corner Watts St., N. Y.

WHOLESALE
DEALERS &
COMMISSION
MERCHANTS.
Established
1875.

HONEY

—AND—

BEESWAX.

LIBERAL
ADVANCES
MADE
ON
CONSIGN-
MENTS.

Gove's INVALID-BED Attachment.

A priceless boon to the sick and their attendant. Positive in action. A child can operate it. Circular free. Patents pending.

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G. H. GOVE, Inventor, Medina, Medina Co., O.

In responding to this advertisement mention GLEANINGS

Stingless Bees!

See page 525, GLEANINGS,
June, 1895.
H. Alley, Wenham, Mass.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must say you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20¢/line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.

J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 26-in. planer, power scroll saw, all iron; tenoner, and mortiser, for portable sawmill, or other wood-working machinery. Will give a bargain for cash.

Geo. RALL, Frenchville, Trempe Co., Wis.

WANTED.—To exchange foundation-mills and honey-extractors for honey or wax.

I. J. STRINGHAM, 105 Park Place, New York.

WANTED.—To buy 2 tons extracted white-clover honey, in 60 lb. tins.

GEO. G. WILLARD,
270 Pearl St., Cleveland, O.

WANTED.—To exchange 200 colonies of bees for anything useful on plantation.

ANTHONY OPP, Helena, Ark.

WANTED.—To exchange sweet-clover seed for first-class queens, extracted honey, or honey-extractor.

AARON SNYDER, KINGSTON, N. Y.

WANTED.—To exchange comb or extracted honey for an incubator; must be a good one.

JOHN BURR, Braceville, Grundy Co., Ill.

WANTED.—To exchange bees in new 8-frame L. hives for a ladies' bicycle.

W. D. SOPER, Jackson, Mich.

WANTED.—To correspond with all who have honey to sell.

F. N. JOHNSON,
Box 137. Knoxville, Knox Co., Ill.

WANTED.—To exchange pure - bred short - horn cattle, either cows or bulls, for clover or basswood honey. If you want good cattle, write me for prices.

CALVIN LOVETT, Otsego, Mich.

Black and Hybrid Queens For Sale.

A dozen or more fine mismated Italian queens for sale at 25 cts. each. They are all young and prolific, and a good share of their bees are yellow.

MRS. THOS. STRAWBRIDGE, Ottawa, Kan.

Hybrids for 20 cts.; mismated for 30 cts.

C. G. FENN, Washington, Conn.

For Sale, 50 Colonies Italian Bees,

With fixtures and honey crop on, with a fine place, 8½ acres; land at a bargain. Address

L. WERNER, Edwardsville, Ill.

Closing-out Sale....

Warranted purely mated queens at 50 cts. each; ½ doz., \$2.75. Good queens of the five-banded strain of Italians. Tested queens, 65 cts. each; ½ doz., \$3.25. Sent by return mail.

W. A. Compton, Lynnville, Tenn.

IMPORTED QUEENS, \$3.25. Untested, 50 cts.

W. C. FRAZIER, Atlantic, Iowa.

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NEW CHICAGO BRANCH.

We are pleased to announce that we have bought from Thos. G. Newman, of Chicago, his good will and stock of bee-keepers' supplies, and have opened rooms at 56 Fifth Avenue, in the Garden City Block, where a full stock of bee-keepers' supplies will be on sale. We have secured Geo. W. York, editor of the *American Bee Journal*, as manager. Mr. York has had several years' experience in the supply business, when he worked with Mr. Newman, before taking charge of the *Bee Journal*. He therefore brings to the work sufficient experience to enable him to conduct our business there with satisfaction to all who may prefer to deal in Chicago.

Mr. York finds that he can profitably spend time in this work besides editing the *Bee Journal*, and we consider ourselves fortunate in securing him as manager for the new branch—the first one to be started in our own name. The address of the Chicago branch will be The A. I. Root Co., Geo. W. York, Manager, 56 Fifth Ave. The transfer is being made as we go to press; and we hope to have within a month a full stock in the new rooms.

SEED POTATOES FOR FALL SHIPMENT.

At the present writing we are prepared to offer lower prices than for many years. For instance, choice selected Beauty of Hebrons, we can furnish for 15 cts. a peck, 40 cts. a bushel, or 75 cts. for a bag containing two bushels; or a whole barrel of 11 pecks for \$1.25.

Monroe Seedling, Early Ohio, Freeman, Early Puritan, Lee's Favorite, Rural New-Yorker, New Queen, Bun-pee's Early, and Sir William, 1 lb., postpaid by mail, 15 cts.; 3 lbs., 35 cts.; peck, by freight or express, 35 cts.; bushel, \$1.00; bag of 2 bushels, \$1.75; barrel of 11 pecks, \$2.50.

The New Queen* was raised by T. B. Terry, as, in fact, are all our Freemans, both first and second sizes. And, by the way, there has been some complaint that the Freemans do not grow large. Give us an order for extra-sized Freemans and we will show you that T. B. Terry grows large ones any way. The Sir William is the potato chosen by W. I. Chamberlain, of Hudson, O., beyond all others on his test-grounds, for the *Ohio Farmer*, and he has 36 acres of potatoes of different kinds this season. A full description of both these potatoes will be given in our next issue. If you want samples to see what they are like, order by mail at the prices given above. By the way, friends, it is a most excellent plan to have your seed potatoes selected in the fall, when the prices are low. In due time we shall have some valuable articles telling how almost any one can keep seed potatoes clear into next June or July, without sprouting or other trouble.

* Here is what Terry says in regard to the New Queen, etc.:

FREEMAN ROOT. We shall have 30 to 40 bushels of good medium New Queen, strictly pure, and no blight whatever. I got the seed from Maine last spring, at a cost of \$50. They are of fine eating quality, and there is no better potato that I know of for early, to get off in time I want. We tried them two or three times. They are ripe. They are of a fine quality, and productive, as the old Early Rose or Beauty of Hebron in their best days. I thought to advertise them, but should be glad to sell out to you to get rid of the worry. I will send you some to cook and try, they are so white and nice.

The quality of the Freeman is simply superb this year. I want to send you some to eat with sample of Queens. There is a flavor about it, if cooked just right, not equaled by any thing else.

T. B. TERRY.

Hudson, O., Aug. 28.

The new potato, Craig Seedling, single pound by mail, postpaid, 20 cts.; 3 lbs., postpaid, 50 cts.; half a peck, by freight or express, 50 cts.; peck, 90 cts.; half-bushel, \$1.50; bushel, \$2.50; 2-bushel bag, \$4.50; barrel of 11 pecks, \$6.00. Second size of any of the above, half the above prices; but, of course, this would not refer to potatoes by mail, because the postage is a large part of the expense. Extra-sized potatoes—that is, only the largest and fairest—one-half more than above prices.

By the way, will our readers who purchased Craig Seedling potatoes tell us on a postal card how much seed they bought, of whom, how much ground they planted it on, and, as soon as they are dug, what the yield is? Do not be in a hurry to dig them, for they will grow and keep growing until frost winds them up; that is, I have never seen any of them die down before the frost killed them; and I would suggest to you not to sell any at less prices than given above. Our yield is going to be something enormous. But every potato will be wanted, little and big.

STRAWBERRY-PLANTS.

If you want strawberry-plants to set out this fall, the quicker you order them the better, for they must make root enough to stand heaving out by the frost, or you will be very likely to lose them. Bear in mind the Timbrel is now for the first time the same price as all the rest in our list of seven choice kinds. Prices—15 cts. for 10 plants; 75 cts. per 100; \$6.00 per 1000. By mail, add 5 cts. for 10, 25 cts. for 100, for postage. For Canada, double the above prices.

CABBAGE-PLANTS.

Now is the time to sow the seed of Jersey Wakefield cabbage for cold-frame plants, to winter over. Cauliflower may be treated in the same way, but it is a little more difficult; the same with Grand Rapids lettuce-plants. Spinach sowed now on exceedingly rich ground, say almost one-half old well rotted manure, will do better than at any other season, for the spring market, and Chinese Rose winter raish will be pretty sure to make a market size before frost, if put on this same enriched soil. Basswood-trees had better not be sent out until October. In regard to bee-plants, I do not know of any of the clovers that can be safely sown so late as this in our locality, but seven-top turnips sown now will, however, do nicely for greens and for honey next spring. They are so exceedingly hardy that they grow more or less all winter, and are seldom or never injured by a freeze.

GARDENING FOR THE MIDDLE OF SEPTEMBER.

I suppose almost every one is rejoicing over the improved prospects since the recent rains. A few days ago Mrs. Root was down in our creek-bottom garden, and in a few minutes I picked her some nice large beautiful Jessie strawberries, a bunch of both red and black raspberries, and some pretty fair blackberries. The red raspberries are the Marlboro. All the fruit was killed in the spring, and the result was, they set again, and gave us the largest, finest, and most luscious red raspberries we ever saw, in the month of September. The very rich soil had something to do with their great size. In regard to the "luscious," I took other people's word for it, as you know I can not even taste them now.

We are now selling green shelled beans, bush lima, Best of All, York State Marrow—and as nice peas as we ever raised at any time of the year.

Beautiful cauliflower, nice celery, late Mammoth Sugar corn, cucumbers, Emerald Gem melons. And, by the way, I must not forget to mention a new watermelon sent us by J. Wittenmeyer, Emison, Knox Co., Ind., which he calls the Sweetheart. A couple of barrels which he sent us as samples proved to be ahead of any thing in the line of watermelons ever sampled at the Home of the Honey-bees. The red sugary part of the melons extends almost clear to the outside of the rind. We shall have it in our new price list for 1896.

American Pearl onion-sets reduced to \$1.25 per peck, \$4.50 per bu. Now is the time to plant them.

Potatoes.

Craig's Seedling, Everett's Early, and Freeman, at prices given by A. I. Root above. W. B. Collins, Blackwater, Cooper Co., Mo.

Queenless Colonies

purpose, and want them *right off*, send your order to me. I can and will fill them by *return mail*. My queens are nice, young *tested* queens, and I sell them at \$1.00 each or six for \$5.00. One queen and the Review for \$1.50. One queen and the book *Advanced Bee Culture*, for \$1.25. One queen, the Review, and the book for \$2.00.

will often be found at this season if they are looked for, and when found should be given a queen at once. If you find any such, or if you wish for queens for any purpose, send your order to me. I can and will fill them by *return mail*. My queens are nice, young *tested* queens, and I sell them at \$1.00 each or six for \$5.00. One queen and the Review for \$1.50. One queen and the book *Advanced Bee Culture*, for \$1.25. One queen, the Review, and the book for \$2.00.

W. Z. HUTCHINSON, Flint, Michigan.

THE TORONTO CONVENTION REPORT FREE!

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GLEANINGS

BEE CULTURE

A JOURNAL DEVOTED TO BEES AND MONEY AND HOME INTERESTS.

ILLUSTRATED
SEMI-MONTHLY
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SEPT. 15, 1895.

No. 18.



MARTINS eat bees, says W. Woodley, in *British Bee Journal*.

UNITING BEES will be more successful if you kill the condemned queens two or three days before uniting.

CRIMSON CLOVER is also called scarlet clover, German clover, German mammoth clover, and Italian clover. Its botanical name is *Trifolium incarnatum*.

THAT SCREW-EYE of F. A. Gemmel, for fastening number-tags on hives, is good—easier to use, and more secure. With nails some of my tags have been lost in hauling.

ABOUT THE TIME I'm writing this, bee-keepers are focusing toward Toronto. How I'd like to see them all! [So say all the members who couldn't go, I imagine.—Ed.]

SPEAKING on p. 670 of the very rare instances when queens sting folks, you might have added that, in rare instances, a virgin queen has been known to sting to death a worker. Seen 'em.

HONEY CLOVER and bee clover are among the common names of balsam clover, *melilotus ceruleus*. From the names one would think it ought to be a good honey-plant. But does it grow this side of Germany?

PARIS GREEN, according to C. L. Marlett, in *Insect Life*, is made in grains unnecessarily coarse merely for the sake of looks. It can be made fine at less expense, and will remain in suspension three times as long.

PUNIC BEES are no longer mentioned. Yet wherever any of that jet-black blood is left in my apiary I find good workers. But they're cross, and not fit to make comb honey. They make watery combs, and, oh the bee-glue!

MY VERY YELLOW BEES are very gentle, and, so far as I can judge, good workers. But I object to the opinion that they or any others are good *because* they are very yellow. [That's the point; but the reports—that is, the great

majority of them—show that they are not good workers or good at any thing else.—Ed.]

HONEY VINEGAR is perhaps not made as much as it should be. A writer in *British Bee Journal* says, "By using an extra quantity of honey one gets a splendid acid beverage that will compare favorably with raspberry vinegar."

IF A. I. ROOT gets everybody on a strictly meat diet, what in the world will he do with all his garden sass? [That's a conundrum that has come to me. We'll see him going into cattle-raising as his next hobby; so, look out.—Ed.]

THE HEDDON HIVE, says the *British Bee Journal*, "had a short run of prominence here for a short time, but soon fell into disuse among British bee-keepers." [But why? is a question a Yankee would ask. Will some English cousin please tell us?—Ed.]

THE AVERAGE YIELD of a good colony is set down, p. 670, as "anywhere from 5 lbs. to 75 lbs. of comb honey." You might lower the smaller number about 25 lbs. [That's true; but *then* it couldn't be called a "yield." I was talking about *yields*, don'tcher know?—Ed.]

"IN ENGLAND, where crimson clover is grown with some difficulty, it is said to winter-kill if sown on newly plowed land, but to pass the winter uninjured if merely harrowed in on stubble."—*Bulletin 125, Michigan Experiment Station*. That is, sow on hard rather than mellow ground.

CHORDIS STULL says the rule about drouth making tomatoes rot doesn't work in this locality, where many acres are raised. Drouth was worse this year than last, vines dying this year from drouth, but not one tomato rotted this year for ten last, until the recent rains. Since the rains they're rotting badly. [It works just the other way here.—Ed.]

SAY, ERNEST, tell us more about that paragraph, "Large Colonies for Honey," p. 673. Did you get any section honey from a colony in two eight-framers? [Now, you shouldn't ask such questions. That whole apiary was run for *extracted*; don't you remember my saying

so? Say, but if I had run for *comb*, I am afraid there wouldn't have been so much on those double-deckers. What more do you want me to tell?—ED.]

RAPE is a great honey-plant in Germany, and perhaps elsewhere, but is little known in this country. The *Stockman* thinks it is destined to become much better known here; and Prof. Thos. Shaw is "certain that it is to be a great factor in solving the problem of cheap-mutton production." "Am pasturing six sheep and ten lambs in fine form on an acre of land."

IF BEES STEAL eggs from other hives, W. Woodley asks in *British Bee Journal*, "why do colonies ever die out from queenlessness after breeding has commenced in the spring, and eggs can be had for the fetching from other hives?" [It was never claimed, if I am correct, that bees always steal eggs, but only that there was strong evidence that they have done so under pressure.—ED.]

I NEVER DREAMED that any one would understand that straw to which S. T. Fish & Co. refer on p. 669 as meaning they were not entitled to having consignments. It simply meant that honey was so scarce that prices must go up before consignments would pour in. The Honey Column for Sept. 1 justifies my anticipation. No quotations are lowered, and some have gone up a cent or two.

NUMBER-TAGS of manilla well-soaked in oil look very promising. They cost so much less than tin that we can try a set; then if they give out in too short a time we can turn to tin. But I earnestly entreat you not think of giving us figures less than $1\frac{3}{4}$ to 2 inches in height. After Mr. Winder has put 1-inch figures to a fair test he'll want to stretch them. [Yes, we'll have respect for the larger figures.—ED.]

MR. M. M. BALDRIDGE speaks almost complainingly of the cropping of sweet clover by stock on the wayside. Nothing pleases me better. For when the stock and its owners both find out the value of sweet clover as a forage-plant it will soon find a permanent lodgment in fields. And I'd rather see every plant on the roadside cut down; but I wish they would cut it before blooming. Then we get greater value in later blooming.

AUGUST 9, put in No. 20 bees with brood and queen-cells. August 26, found present a virgin queen with one wing torn away. Killed her and began distributing the bees and comb, when I found another virgin queen with whole wings, neither of the queens appearing very young. The latter queen began laying Sept. 3. Did each queen have a faction of adherents loyally protecting her, or how was it? [Are you *sure* the wing of the first queen was torn away? I should guess that she was "born" so. Still, it is not improbable that the wing could have been removed by the bees.—ED.]

SPACING-STICKS for keeping top-bars at fixed distances, who invented them? After they become well glued, and I try to use them, I feel an ardent desire to use one of them to whack the head of the man who got me to try them. [I may as well confess that I was the man who got the doctor to try them. Another chap put the idea in my head; and before I tried them I sent some of the sticks to the doctor, and this is the way he would use me. Well, I don't blame him; for, after I had tried them, I felt just like, like—kicking myself and the "other chap" too. No, sir; I want spacing-devices to be part and parcel of the frames themselves. They are a mistake when made detachable in the way of sticks or when a part of the hive-body itself.—ED.]

THE HOUSE-APIARY described on p. 662, if I understand it correctly, costs \$3.36 per colony, besides cost of hive. There ought to be a very big advantage to offset that. [That's true; but this figure covers winter protection—that is, saves packing-cases or more expensive double-walled hives; or toting bees in and out of cellars every fall and spring as you do. Again, it saves in economy of room; saves steps, as the hives are all close together, and saves disagreeable outdoor robbing. The house is a big advantage in the matter of extracting and in fall feeding. It can be locked; and bees, honey, and all be tolerably secure from petty thieves. Tools, such as smoker and the like, always under protection from the weather; and it makes no difference what the weather is, the apiarist can work right along. Last of all, the building may be used as a temporary storage for honey just taken off. The outdoor plan usually calls for a little building for tools, storage, and a general shop. The expense-item, if considered in the long run, is rather in favor of the house-apiary.—ED.]



THE HIVE QUESTION.

EXTRA LARGE HIVES NOT ALWAYS MOST PROFITABLE; LARGE AND SMALL BROOD-CHAMBERS COMPARED.

By B. Taylor.

Editor Gleanings:—After reading the five or six interesting articles in July 15th *GLEANINGS*, on large or small hives, I can not refrain from adding a final word. I have been making some careful observations directly in that line this season. I am now trying to earn a living by raising honey, and am very anxious to find and have the advantage of a hive that would give best results, and would at once use a large hive

if I could find the proof that such was best. Now, I have learned by experience that extra-large swarms are not always the most profitable. Such, as a rule, are the ones that give trouble by deserting their hives, after being hived, and that whether they are hived in large or small hives; and I also *know* that they do not always make the most surplus, even when they work contentedly; yet I like fairly large prime swarms; and as the large-hive brethren are always talking and writing about the advantage that their large hives give in sending out larger swarms, I concluded to try some careful experiments in that line. So last spring I put out some ten swarms in hives containing ten combs 13 inches long inside the frame, 6¼ inches deep, 80 inches in each comb, or 800 in the hive. As many more contained 1000 inches in the hive, while 25 contained 1600 inches each. All the hives contained colonies of nearly equal strength, but with a little advantage in favor of the large hives. All of these had abundant natural stores, and were treated in other respects as nearly alike as possible. The 1000-inch hives produced the first swarms, closely followed by the smallest ones. Some of the large hives swarmed reasonably early; and where they did, the swarms were in no case extra large, but in some cases *smaller* than those from the *smallest* hives.

I had said nothing to my son, who, in most cases, put the swarms into the catchers; but he very soon came to me and said that some of the very largest swarms were coming from the smallest hives. Two years ago I told in the *Review* how I had produced the second largest amount of comb honey I ever raised from a single colony (250 lbs.), all the bees of which were raised in one of those little 800-inch hives. That hive swarmed rather late in the season, but the queen did not follow. The swarm returned, and did not come out again, and this queen had been marked for destruction the previous fall on account of seeming inferiority that season.

The swarms I have mentioned as coming first came just as or a little before the white and al-sike clover bloomed here, and have made what white honey I shall get this year. Near the close of the clover season most of the large hives swarmed, and the swarms were very large—much larger than any from either large or small hives that swarmed early, and some of them cast second swarms of great size.

Now, friends, these large hives had made no section honey worth mentioning, previous to swarming—not nearly so much as the smaller ones; and need I point to the fact that these great swarms came *after* the battle for this year was over? and unless the fall differs from those of 1893 and 1894, they will prove worthless. If there is a good fall flow of nectar, which seems promising now, they may partly redeem themselves; but the swarms that have made

considerable white will share equally in the benefits of a fall flow.

I always read Mr. C. W. Dayton's articles with interest, whether I agree with him or not. Bro. Dayton is both a thinker and experimenter, and always has some demonstration to back his opinions. I am not surprised that he has come to the same conclusions in regard to hives, nearly, as myself. *He has been at work.*

I remember that, at the national meeting at Chicago, in 1893, a vote was taken, both for and against double brood-chambers. Some fifty votes were cast. Nine-tenths of them condemned such hives. Those who had tried such hives were then asked to stand up. Some four or five arose; the other forty or more had nothing but *prejudice* and lack of knowledge upon which to base an opinion. Thus we go blindly through life, condemning those who have *searched* for truth, and in religion and politics, honestly believing that things that are right are wrong, and that things that are wrong are right. Let us prove things by investigation, and hold fast to the things that prove true.

Forestville, Minn.

[Since the above was in type, Mr. Taylor has sent us the following by way of explanation of a few points.—Ed.]

Editor Gleanings:—I wrote you an article a day or two ago, on the effect that the large hives have on the size of swarms. There was one point I ought to have mentioned in that article; viz., the quality of brood-combs. I have eight hives of the Langstroth ten-frame size that I took of a friend last spring. An examination of them has led me to make that explanation. Now, as a part of my last article, these Langstroth hives contain nearly twice as many inches of brood-combs as my smallest hives mentioned in that article. The combs had been built on wide strips of foundation. The consequence was, some frames were filled nearly solid full with drone comb, and there is scarcely a frame but has some drone comb in it. The consequence is, my 800 inches of comb in the small hives has more worker comb than one of these big ten-frame hives. Let it be borne in mind that all the hives mentioned in the experiment were solid full of *worker* comb. I have fifty hives now in the apiary that have not enough drone comb in them all to fill a single frame. The combs were built on worker foundation, in frames with horizontal wires, so that all sagging was prevented, and all bee-spaces are not over ¼ in.; so there is no place for drone comb in them. I have examined hives in which I could not find a single drone-cell. This is the best drone-trap ever invented: *Raise no drones to trap.* I have heard it suggested that such colonies would not swarm; but it is all theory and no fact, like many cherished notions in all trades 25 years ago. In the afternoons the drones would fly from the hives, with a roar like

a waterfall; but now there is never heard that death-knell of *paying* honey crops in our beeyard, in such a year as this. The conditions existing in our apiary twenty years ago would render any surplus impossible. I shall get some surplus. So much for modern improvement.

Forestville, Minn., July 23. B. TAYLOR.

[Heretofore the testimony has seemed to show that there were more swarms with small than large hives, but your experience seems to be the other way. Has any one else had experience similar to Taylor's?—Ed.]

A TEN-FRAME HIVE AND A GOOD QUEEN.

I am becoming interested in the hive question, and will tell you the hive I want. It is the one that has the best queen in it, and it takes a ten-frame Simplicity hive to hold her with three T supers on top; but two are holding her this year. So far she has 46 sections finished to date, and I run 20 ten-frame simplicity hives of bees, and 37 eight-frame hives of bees this year. Out of the 20 ten-frame hives came 4 swarms; 37 eight-frame hives cast 27 swarms. That's how they did this year with me. What has become of G. M. Doolittle? Have him wake up and tell us all about what kind of hive to use.

H. W. VANKIRK.

Washington, Pa., July 23.

TEN-FRAMES AHEAD.

I should like to add my mite to help out the ten-frame hives. Let your arguments in GLEANINGS go on a while, and we shall find out that many have changed to the eight-frame hive against their own pocketbook. I have always been afraid to leave the ten-frames, so have kept half in each for five years. The tens are always ahead. I have this spring 40 colonies—20 eight and 20 ten-frames. Seventeen of the tens have ten frames below, and super with from 10 to 25 lbs. in, and only 5 eight-frames have the average 10 to 25 lbs., and are ready for supers. The rest have no supers on yet. I use half-depth extracting-supers at first. It is very cold here at present.

C. G. NEVIUS.

Chiles, Kan., May 23.

SHALL THE HIVE DISCUSSION CLOSE?

I have read with so much interest the articles on small vs. large hives that I am sorry to see the argument close. I am a bee-keeper on only a small scale, but I want to have the proper size, as I expect to engage more extensively in the bee business in the future. I believe the location is the greatest problem to solve, so that we can arrange the size according to it. We know positively that, the more space we have in the brood-chamber, the more bees it will require to keep it warm; the more bees you have, the more honey it takes to carry them through the winter; hence you have it in a nutshell.

And now, Bro. Root, if you will allow me I

should like to give you my experience with three hives during this summer, and I will try the same thing again another season if I live. It is this: I took the three hives and placed them side by side, and had the same kind of bees in each hive. One hive contained nine frames, one eight, and the other six. The eight and six are thick top-bars, and the nine are $\frac{1}{2}$ -inch. I have not 1 lb. of surplus from the nine; got 10 lbs. from the eight; and 20 lbs. from the six; and to-day the six has 10 or 12 lbs. on, while the others have none; so, now, which hive can I chose for business?

Blacklick, O., Aug. 15. D. N. RITCHEY.

A FEW FACTS AND FIGURES IN FAVOR OF THE TEN-FRAME HIVE.

GLEANINGS is a welcome visitor. I think you might just as well give up the discussion, because the location and honey-flows make all the difference of opinion. I started with ten-frame hives several years ago; then when they made the strong claims for the eight-frame hives, I put one-half in each, eight and ten frames. With my location as to honey-flows, my ten-frames store 2 lbs. to 1. The eight-frame hives and the eight have done all the swarming until this year, when the swarms all came from the ten-frame hives. The cause was, the ten-frames stored enough honey from fruit-blooms to carry them through to the next honey-flow, while the eight-frames nearly starved. These are about the amounts that they have stored this year so far:

18 colonies, 8-frames, 230 lbs. comb. 300 lbs. ext.
20 colonies, 10-frames, 400 lbs. comb. 600 lbs. ext.
Two best 10-frames stored 100 lbs. each.
Two best 8-frames stored 30 lbs. each.

We always have a fall flow commencing the 20th of August. The prospects are the best in four years.

C. G. & W. V. NEVIUS.

Chiles, Kan., July 22.

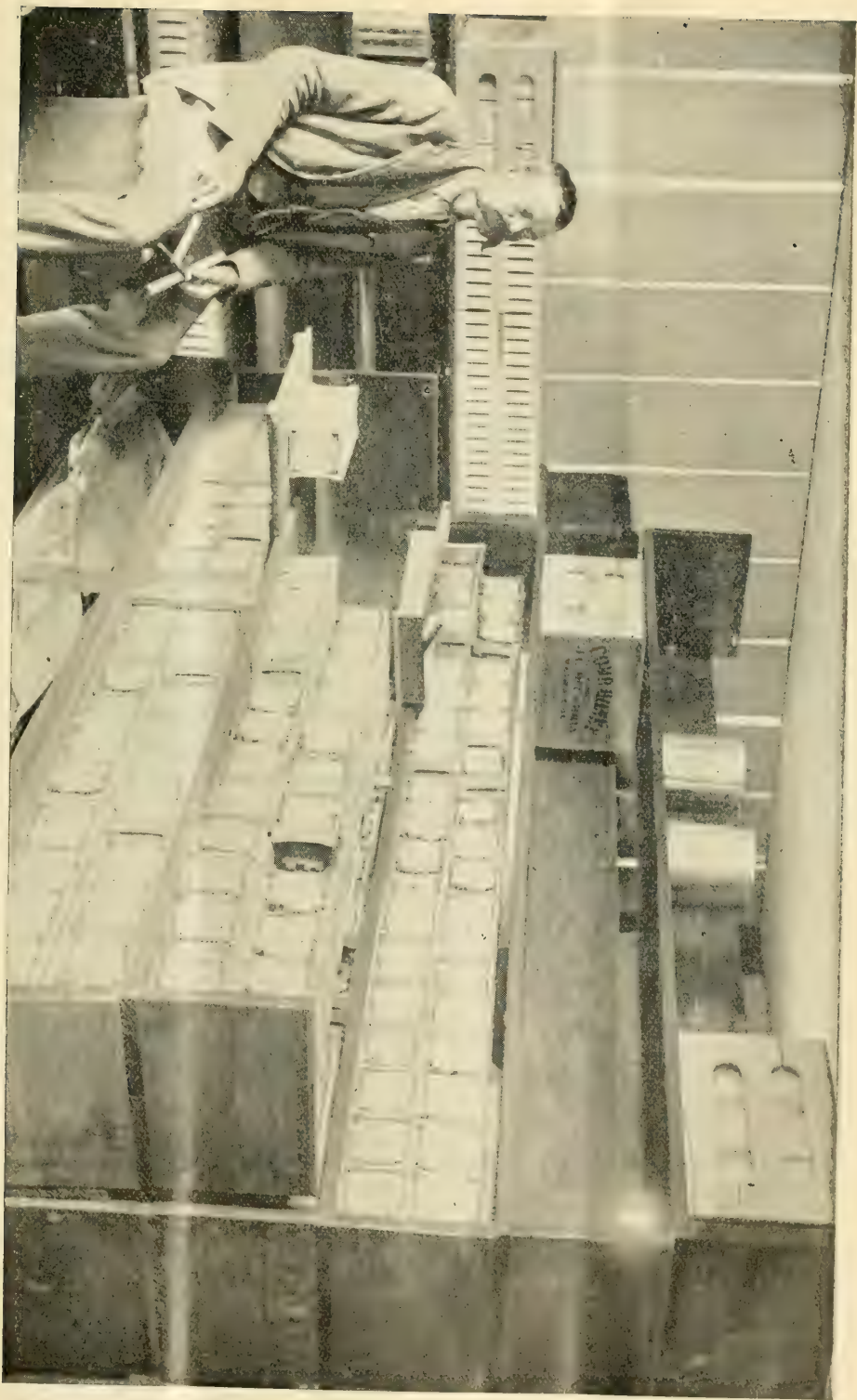
[This is the first letter we have received intimating that the hive discussion had better be discontinued; but if we can get a few facts such as are here given, it ought to go on a little further yet. To have stopped it three months ago would have left us but little wiser than when we first started out; but now we have learned what a bearing locality has in the matter; that there are more using ten-frame Langstroth hives and deeper hives than we supposed. But if even a few vote to have this discussion discontinued we will do it.—Ed.]

RAMBLE 140.

AT M'CUBBIN'S.

By *Rambler*.

On the 26th of November Mr. McCubbin devoted a good share of the day to driving the Rambler out among the bee-keepers. Our first call was upon Mr. C. M. Davis, who had an apiary of 125 colonies upon the home ranch, and another apiary 60 miles away, over on the



MR. J. C. MCCUBBIN GRADING HIS COMB HONEY.

West Side. He was engaged in getting his honey ready for market.

Mr. R. E. Zimmerman was another prosperous bee-man, and very patriotic. He had just been elected to serve his country as constable, and did not seem to wear any larger hat than we common people. He was more successful as a candidate than our friend McCubbin. The latter was also patriotic, and ran for office; but owing to the fact that he belonged to the right party he was not elected.

Mr. Zimmerman is the happy possessor of 225 colonies of bees, or was at the above date. His apiary showed something of the wear and tear of the late political strife; and, the soil being of a very productive nature, the weeds had gotten the start of him; but in spite of politics, a dry season, and healthy weeds, his best apiary of 120 colonies had averaged 60 lbs. of comb honey to the colony, and he was busy at work in a cheese-cloth honey-house getting it ready for market.

Mr. McCubbin's apiary of 143 colonies was nicely located upon what I should call very poor soil. Even weeds would not grow there. It is, however, possible that his political sentiments of prohibition went so far as to interfere with the personal liberty of the growth of the weeds. If so, I have no doubt the weeds loudly protested, as all weeds do in the moral world when an effort is made to root them out. I mentioned the fact that Mr. McC. had several tons of honey in his residence in town, and here in his honey-house at the apiary were several tons more which had just been taken from the hives, and was ready to be graded. I secured a fine photograph of our friend and his honey.

Mr. McCubbin is something of a genius, and believes in short cuts to save labor. The photo shows his portable shelves and his method of using them. The shelf is constructed by nailing together at the edges two boards, six or eight feet in length, twelve inches wide, then nailing in square end-pieces as shown. In use, these shelves tier up; the honey is brought from the hives, taken from the supers, and placed upon a shelf. When this is filled, an empty shelf is tiered upon it, and so on until a large amount of honey is upon the shelves. Two smaller adjustable shelves or brackets are attached, and moved as the operator requires, while grading and packing.

Eight sections of comb are placed together upon the little shelf. In Mr. McC.'s hand is shown a small V-shaped strip. One of these strips is nailed upon each corner of the sections. The eight sections thus held compactly together in one box, as it were, are then packed into the crate shown upon the upper shelf, holding 48 sections.

The adjustable bracket upon the middle shelf is a handy receptacle for nails and strips.

Mr. McC. thinks he can work much faster this way than to crate from the supers as they are taken from the hive.

The section used by our friend is $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$, and holds a trifle over 12 oz. Many bee-keepers use this size section about Selma. The preference is gaining ground for a section that will hold a full pound. From 140 colonies Mr. McC. secured during the last bad year 6300 lbs. of comb honey and 1500 lbs. of extracted.

The increase in Central California comes early; then there is a dearth of honey in May, followed by a flow of nectar all through June, July, and August. The early alfalfa bloom yields but a small amount of honey as compared with that secured from the later bloom; and the early and late maturing of blossoms lengthens the honey season. Here it is a period of sweetness long drawn out.

Apiary work commences here in March, as it does further south; but instead of ending in July, as it generally does in the southern counties, the bee-keeper is kept quite busy clear up to December. The few intervening months are profitably spent in preparing for the coming season. Central California bee-keeping needs no side issues, for there is enough to it to make it an all-the-year-round business. In the little town of Selma there are seven bee-keepers. Their apiaries are located at various points all the way from one mile to ten from town; and several progressive men like Mr. McCubbin devote their entire time to bee-keeping. One of these progressives is Mr. O. W. Stearns. He resides in a pleasant home in the suburbs. His apiary of 390 colonies is out of town; but he has a few colonies near the residence, just to hum around and keep him company. Mr. S. manages on economical principles, making hives of gasoline and oil cases; and while he practices economy outside the house, a worthy helpmeet manages things in the house and shop, and attends to many little details that would escape the attention of the men; for instance, Mrs. S. saved 14 lbs. of nice beeswax which she made from scraping sections and frames that had been thrown aside as worthless. From the amount of beeswax I have seen wasting in many California apiaries it would be an excellent idea for many more ladies to take a hand, especially in the wax management of bees.

Mr. Stearns said that, from 30 colonies, spring count, he increased to 71, and obtained 5000 lbs. of comb honey. To further demonstrate what his bees were doing at that date, Nov. 27, Mr. S. opened some of his coal-oil-case hives and showed us combs that had been drawn out, and well filled with honey, but not sealed. Holding up a new comb, "This," said he, "has been drawn from foundation, and filled, as you see it, since election day. The product was grape honey. As the reader is probably aware,

all of this country around Selma and its neighboring city of Fresno, is planted largely to grapes, and the product of the vineyards is, to a great extent, raisins. After the harvesting of the main crop, there is more or less of a fall crop that nearly all goes to waste. Birds and insects live upon them, and the bees bring in much of the juice; and, from the sample of comb shown, it answers for drawing out foundation, and bees will winter well upon it, for I have in mind parties who pressed out the juice and fed it to their bees in Southern California with success. The product from the Stearns hive would not be pronounced good honey, for it had not undergone very much change. It was grape juice still, and had a distinctive raisin taste.

Although our friends had nice comb honey, all they were offered by dealers was 8 cts. per lb., and the most of it was sold at that price. They were, furthermore, suffering from a rank injustice in relation to tare on honey-cases. Upon a case weighing 4 lbs. a tare of 7 lbs. was taken; upon a 6-lb. case, 9 lbs. tare — a clear steal of 3 lbs. on every case. Individual action in shipping was hampered by the railroads charging excessive freight rates upon less than car lots; and as but few bee-keepers produce carloads of comb honey they have to submit to the extortion. Coöperation, it seems, would help the bee-keepers of Central California, as well as the bee-keepers of the whole country. Let's have coöperation.

Mr. Wilder and I concluded that we should like to enjoy the hospitalities of Bros. McCubbin, Zimmerman, Stearns, and a host of other bee-men, for several days; but the clouds, and a sprinkle of rain, admonished us again to be on the road, and we left our friends, feeling that Central California, though not written up to a great extent, is a honey-producing location that will attract more attention as the area of alfalfa is increased. We also desired to turn aside from our route and look up the honey resources of Kings Co., and around about Tulare Lake. In Lemore, Kings Co., resides Mr. J. F. Flory, a gentleman not unknown to the readers of GLEANINGS, and an extensive honey-producer, not only in Kings Co., but also the West Side. We could only look that way while our ponies were speeding toward Bakersfield.

KEEPING TOPS OF SECTIONS CLEAN.

A BEE-SPACE BETTER THAN QUILTS OR SHEETS,
AND WHY.

By Dr. C. C. Miller.

A correspondent thinks some one should invent a way to keep the tops of sections clean. I don't feel very sanguine in that direction, as to any great improvement over the present. There are two ways in practice. One is, to leave the

tops entirely uncovered; and the other, have them covered. If left uncovered, there is nothing to hinder the bees from putting on all the propolis they like. With a cover of enameled cloth or any other cloth, the bees push glue into the crevices, and gradually raise the cloth until the glue is a quarter of an inch thick and all over the top. A rigid cover of wood is not so bad; but I never saw any thing of this kind but that the bees could squeeze in a line of glue along the edges. Perhaps it is because it is impossible to have a perfectly close fit with a rigid covering.

The only way I can think of to have something fit down close enough would be to have a cloth cover; then over this lay a bag of sand, so that the weight of the sand might press down at every point. It is possible, however, that it might take something like a wagonload of sand to press down hard enough so the bees could squeeze in no glue.

On the whole I have been best satisfied to leave the tops of the sections free for the bees to manage as they like. Watch closely and see how the bees manage a super in which the sections are left uncovered, and one at the same time in which a slat covers them. In the early part of the season propolis is not so plentiful as later, and bees don't seem called upon to use it as a varnish, except to glue up cracks and crevices. They will crowd in glue over the edges of the covered sections, and leave the uncovered sections clean. Later on, after the white-honey harvest is over, there seems to be a surplus of propolis, and it is smeared everywhere, even on flat surfaces. At this time the uncovered sections get the worst of it, being painted all over, while the covered ones are clean, all but the edges.

As we can generally manage to get sections off before the glueiest time comes, I think less glue will be found on the sections left entirely uncovered, and we must be satisfied to scrape off all we find.

NEW THINGS.

"Why is it, doctor, that people seem always ready to down a new thing?" writes a friend. The first part of the answer to that is, they're not. What bee-keeper is there who hasn't a lot of traps stored away somewhere, or lying kicking around, showing the many new things that were received with favor, only to be found wanting when tried? Witness the favor with which the Chapman honey-plant and other new honey-plants were received. But who has a field of them now? All of which goes to show that, as a rule, people are not down on new things to an intolerable degree.

As experience tells us that the majority of new things will not prove desirable, it is only right that, when a new thing comes up, we should want to know all we can about it. Foundation with a veneer base is instanced.

You think it looks nice, and you regard it with great favor. After you have fully tried it, your word will be worth more, whether your decision is adverse or favorable. And until you have tried it you want all the light you can get. I've tried something a little like it, foundation with a base of paper or tin foil. I'm pretty sure, you'd want to know how that succeeded, and those who have tried any thing of that kind, and failed with it, ought hardly to be censured for telling of the failure.

But you say, "There are new things that are good; why not give a level-headed judgment always, and tell us in advance what things are worthless and what are worth a trial?" Dear me! who knows enough?

Marengo, Ill.

[Yes, it is true that most new things are not what they seem to be at first. Another instance is the Langdon non-swarmers device. On paper it looked like a "big thing," but in the practice of bee-keepers generally it did not prove to be such. Reversing of brood-frames and hives was another new fad that rose and died again. Contraction of the brood nest had its day, and now is gone largely into disuse, and so I might go on and name a lot of others. But bee-escapes, among the more modern "new things," especially the Porter, stands out as a brilliant exception.

Your friend refers to wood-base foundation as something new. Why, that is, I was about to say, one of the very old "new things," if I may use such language. It had its day years ago. Now the question is, shall it have another? The fixed-frames idea was an old fad, and came near being left out the catalog of modern appliances altogether. But experience has shown that it was condemned too hastily, and that because of their real merit they were bound to come up again and stay up. I hardly think this experience will be duplicated in the case of wood-base foundation.—ED.]

ITALIAN OR CRIMSON CLOVER.

TRIFOLIUM INCARNATUM, ETC.: AN OLD HONEY-PLANT IN ENGLAND.

By Samuel Simmins.

Editor Gleanings:—I have been interested in your experimental trials with this clover, and notice your request in GLEANINGS for August 1. You appear to consider it, or its honey-yielding qualities, as something only recently discovered. You will find it mentioned in "Modern Bee Farm," 1887 edition, and on page 55 in the later issue, of which I had the pleasure of forwarding you a copy. The plant has been known to and appreciated by bee-keepers here for many years. Around our large towns it is sown in extensive areas, being cut for green food and sold to owners of town stables, as well as greatly valued for home use. Bees simply roar on it, and store heavily for the few days it is in flower. That time is short, as it is usually cut before reaching full bloom. If allowed to stand for seed, however, the bees have access to it for from six to eight weeks at a stretch, and in good weather there is a continuous hum over

the field. The honey is light in color, and of fair flavor. There is also a *white* variety, but I am not aware that it is as useful for honey. Like most clovers, the seed can be sown to make a profitable crop only in the autumn for the following year's use.

I have sown this summer (July) buckwheat, trifolium, and melilot clover on the same piece of five acres. The buckwheat has come in bloom within one month from sowing. The mixed clovers are coming up nicely, so that for hay the crimson clover will be cut in ordinary course early next June, with a tender growth of melilot not in flower. Alone, the crimson clover makes poor hay, or, at least, it lacks scent, which the melilot supplies, and that one of the most fragrant kind. By cutting at that date, the flowering sweet clover to follow does not become so coarse as otherwise would be the case, and therefore is of more use as hay.

After once cutting, the scarlet clover is of no further value, though a few heads may again appear. Another piece of ground I shall have clear next spring, I propose to treat in a similar manner, except that in March, or earlier, mustard will be sown to come into flower from the middle of April, to be plowed in just as the final blooming is over. Buckwheat put in in June, harrowed and rolled, waiting for a wet season, any time up to September, before sowing the mixed clovers, as before; with no harrowing or rolling, as the buckwheat will be up and in flower.

It should never be forgotten that all clovers germinate best—in fact, *only perfectly*—when scattered on the very surface of the ground; therefore wait for a wet time if possible before sowing, and in three days the ground will be smothered with the new-born plants. Of course, the ground is to be got down fine and firm in the first place; and in dry weather, with no other crop up, it may be rolled after seeding, to advantage; but *never* rake or harrow *after* sowing clovers of any kind. Many a farmer has lost a crop—and a season—through sowing fine seeds previous to harrowing, and before rolling at all, thus setting it too deep for germination. Never omit to do both some time before; roll again after sowing if dry, but do neither after if a wet season can be waited for. Above all, never omit to roll down as hard as possible the following spring, as soon as the frosts are over, or the plants may fail to root properly again after the usual loosening of the soil—the result of the freezing.

Apart from its duration if left for seed, a succession of bloom may be had by cutting a part of the crop of trifolium *before* flowering at all, when, of course, that portion will come forward again, to bloom freely after that left standing has declined.

You may naturally ask, "Can not a succession be had by sowing at different times? or

will not the white and red varieties bloom at different dates?" So far I can give no satisfactory information on this point. Both appear to bloom at the same season. The plant must be started the year (autumn) before; and, whether sown earlier or later, the time for blooming is at the same period.

By far the best way is to work for a succession, as I have already shown, with different plants, which are all at their best in their own respective seasons, plowing under the last crop of melilot as the bloom fails.

In the ordinary way, the farmer sows over wheat, oats, etc., after cutting and carrying those crops (August to September), without cultivating, and therefore, of course, on pretty solid ground, and very little is needed besides rolling the following spring. A thin crop of trifolium is seldom seen. My directions, however, refer to cultivation for bees and forage. The buckwheat, of course, is always a valuable crop for its seed.

Seaford, England.

THE WEIGHT OF BEES, LOADED AND EMPTY.

THE MOST ACCURATE FIGURES YET GIVEN.

By Prof. B. F. Koons.

Friend Root:—Some two years ago, in a leisure hour I went to my apiary and captured one outgoing bee from each hive and subjected them to the fumes of cyanide of potassium for a few moments to render them inactive, and then weighed each bee upon our chemical balances—a pair of scales so delicately adjusted that it is an easy matter to weigh the one-millionth part of a pound or the one-thousandth part of a bee. From the weight of each separate bee it was a very simple problem in arithmetic to compute the number of bees in a pound. The results showed that mine, which perhaps are a fair average in size and weight, ran from 4141 to 5669 in a pound. These results you published in *GLEANINGS*, and there expressed a wish that I would also determine the amount of honey carried by a homing bee. In my research for the weight of bees I took those just leaving the hive, which naturally would represent the normal weight, having no extra honey or pollen on board.

During the present summer, when the bees were very active, I have undertaken to carry out your request as to the amount of honey carried by a bee. My method was this: From the chemical laboratory I secured a couple of delicate glass flasks with corks, marking them A and B. Each was very carefully weighed, and the weight recorded. I then went to a hive, and, with the aid of a pair of delicate pliers, or plucers, I captured a number of incoming bees and dropped them into flask A. I then secured about an equal number of outgoing bees in flask

B. These were then taken to the laboratory immediately, and each flask again weighed, after which the bees were carefully counted and released. This operation was repeated quite a number of times, not on the same day, but as opportunity offered, and when the bees were bringing in an abundance of honey. I captured from 20 to 45 bees for each flask at each trip, aiming to have, as nearly as might be, the same number in each flask on any particular trip. I always weighed the flasks before starting out, lest some little bit of soil or stain, or even moisture on the glass, would render the results less accurate; I also always allowed any moisture condensed upon the inside of the flasks, while the bees were confined, to evaporate before weighing for another trip. I then treated my results as follows: From the weight of flask and bees I deducted the weight of the flask; the remainder I divided by the number of bees confined on that trip. This gave me the average weight of the bees captured at that time. The average weight of the bees in flask A, or loaded bees, was always greater, as it should be, than the average weight of the bees in flask B, or unloaded bees. The difference between these two weights gave me the average amount of honey carried by that lot of bees.

Mine are Italian and hybrid bees, but I made no attempt to determine the difference in the amount carried by the different swarms or breeds. I kept no record of the swarms, except that I guarded against going to the same hive for a second lot of bees. A considerable difference does appear, but probably that arises in part from the abundance or scarcity of the honey on that particular day on which the colony was visited. My aim was to secure reliable results, as nearly as possible, representing the average amount of honey carried by bees.

The following is the result of weighing several hundred each, of the returning and outgoing bees. The smallest number of bees necessary to carry one pound of honey, as shown by my results, is 10,154; or, in other words, one bee can carry the $\frac{1}{10154}$ (one ten thousand one hundred and fifty-fourth) part of a pound of honey; and the largest number, as shown by the results, required to carry a pound is 45,642; and the average of all the sets weighed is 20,167. Perhaps, then, it is approximately correct to say that the average load of a bee is $\frac{1}{20167}$ (one twenty-thousandth) of a pound; or, in other words, if a colony has 20,000 bees in it, and each makes one trip a day, they will add one pound to their stores. Of course, not all the bees in a colony leave the hive, the nurses remaining at home, hence necessitating more trips of those which do "go a-field."

I also repeated my observations of two years ago on the weight of bees, and found that my numbers ran from 3680 to 5495 in a pound, and the average about 4800, the same as in my for-

mer test. I likewise secured the following on the weight of drones: Of a dozen or more weighed, the largest would require 1808 to make a pound, and the smallest 2122, or an average of about 2000 drones in a pound, over against nearly 5000 workers.

Bees have been doing reasonably well here in Connecticut this year. I keep my apiary reduced to 12 colonies, and from these I have secured 450 lbs. already, and shall perhaps have 150 more at the end of the season, and an abundance of stores for the winter.

The excessive drouth of 1894, and this year in June and early July, almost completely cut off the supply of white clover; but chestnut, sumac, buckwheat, and goldenrod, have yielded well. Basswood is too scarce in this State, particularly in the eastern half, to be counted among our honey-producing plants.

Agricultural College, Storrs, Ct., Sept. 3.

[I consider this the best article we have ever received on this subject—the more so because it comes from a practical man of science, and president of one of our leading agricultural colleges. I have marked this article for insertion in the 72d thousand (next edition) of our *A B C of Bee Culture*.

In a nutshell, and speaking in round numbers, we may say that it takes 4500 bees to make a pound; and that, while 10,000 bees may carry a pound of nectar, twice that number, or 20,000, is probably more nearly the average. During basswood bloom, the first figure should be considered as the nearer correct one because the bees drop down at the entrance; and from almost all other sources of nectar the twenty-thousand mark is the one to accept.

Let us now look at these interesting figures in another way: A bee *can* carry half its weight in nectar; and perhaps, under certain circumstances, a trifle more; but, generally speaking, one-fourth its weight is the amount. A single strong colony has been known to bring in a trifling over 20 lbs. of nectar from basswood in one day;* but usually four or five pounds is considered a *remarkably big* day's work. If we figure that there were, say, in the first instance (20 lbs. per day), 8 lbs. of bees, there would be 36,000 bees. If 20,000 of these were field-bees, (estimating 10,000 necessary to carry a single pound of basswood nectar), those bees must have made forty trips. On the same basis of calculation, a colony of equal strength that brought in 5 lbs. would make one-fourth as many trips, or an even ten. This would leave for each trip one hour for ten hours; or, in the case of 20 lbs. a day, twenty minutes.

There, perhaps I had better not carry this out further, or I may get into a tangle.—ED.]

THE RULE OF QUEENS AND AFTER-SWARMS.

CLOVER AND BASSWOOD NOT YIELDING HONEY.

By W. S. Foltz.

Dr. C. C. Miller:—In *Stray Straws* in July 1st GLEANINGS you ask, "If instinct impels so many queens to leave with after-swarms, what

holds any in the hive? or will all leave if out of the cell?" Did you ever examine a hive that had cast an after-swarm containing several queens, to see if any were left in the hive? and if so, how did you always find them? In my limited experience I have examined several such, and always found one or more queens, either in the cell or running over the combs. I have never known a hive to swarm out entirely queenless—have you?

In another *Straw* you say that you have known clover to yield honey; but it was not this year nor last. Will you please tell us how long it has been since you knew white clover to yield honey? Here it has been about ten years since we have had any clover honey. The editor wanted to know why you didn't move over into Wisconsin, where there are basswoods. We have basswood here, but don't get any honey from it oftener than about once in five years. Last year it bloomed, but the bees did not work on it, although there was no honey to be had from any other source while it was in bloom. This year there is no basswood bloom, and our bees are starving on raspberry juice, and practically destroying what little crop the frost left. You might as well let your bees starve for want of clover honey as to move them and have them starve for want of basswood honey. If there is no change in the production of honey here it will not be more than three years before there will be no bees in the country. Farmers have all let theirs die, and the few experts that have been feeding have got tired of an outlay that brings no income, and most of them will let what few bees they have starve the coming winter, if they do not gather enough fall honey to feed them through.

I aim to keep about thirty stands of bees, that being as many as I can attend to besides other work. Four years ago I purchased 2000 sections, and have not bought any since; and from present indications I shall have enough for ten years to come. Three years ago I had 35 stands of bees. They have dwindled down to 26, two having starved this summer. I have not had a swarm this season nor last. We don't have to experiment here to keep our bees from swarming. They have no desire to swarm. I wish they had. May be some of those fellows who are experimenting to prevent swarming would like to get a strain of bees that don't swarm. If so, we have them. They won't fertilize fruit-bloom either. I have tried them for more than 20 years, and they are "no good" for that. If some one has bees that swarm too much, and he can warrant them to fertilize fruit-bloom, I'd like to trade.

Muscatine, Ia., July 8.

[Dr. Miller replies:]

I think the rule is, that more than one queen is left in the hive after an after-swarm, but I don't know that the rule is invariable. I for-

*We had one colony that brought in over 43 lbs. in three days; and Doolittle 66 lbs. in the same time from basswood.

merly thought that no set of bees would be so idiotic as to let their last queen go out with a swarm; but I think I have read quite recently of such a case in one of the foreign journals. We know very well that an after-swarm often contains a number of queens. If four or five young queens come out with the swarm, or even if more than one issues, is a third not as likely to issue as a second, and so on for any number? And yet I think it is very rare that all the young queens leave the hive. Possibly close observation would show that in such cases all the free queens do actually leave the hive, leaving only such as are yet in their cells; and if all happen to be out of their cells, queenless results.

As to the yield of white clover here, the last to amount to any thing was in 1893, although both last year and this year I suppose a very little white-clover honey was gathered. But it was only a fractional part of what the bees required for their own use. The whole matter doesn't look very encouraging; but here's the tune I whistle to keep up my courage: No one knows any reason why we do not have the same yields as in former years. The whole matter seems to be in obscurity; and so long as we know of no reason for the lack of harvests, is it not reasonable to suppose that next year may happen to bring a big yield? It doesn't cost much to whistle that tune, and it makes one feel more comfortable. C. C. MILER.

Marengo, Ill.

HON. GEO. E. HILTON

AS A BEE-KEEPER LEGISLATOR; HIS CAREER
IN POLITICS.

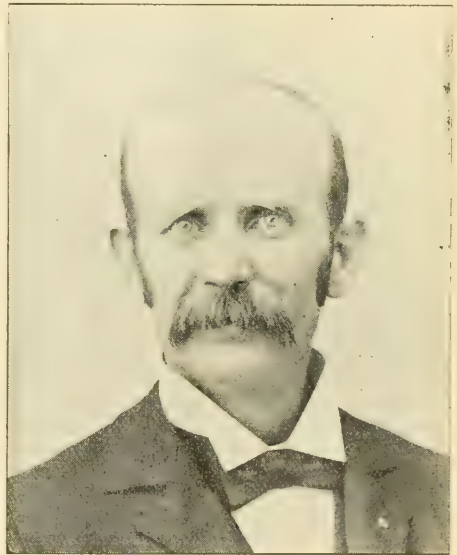
[I am always glad to hear of the election of a bee-keeper (honest ones I mean) to a public office, be he a Republican or Democrat or what; but it gave me a peculiar pleasure when I learned that my friend Mr. Hilton had been chosen by the good people of his district to represent them in the Michigan State Legislature. "For," I said, "he is not only a good bee-keeper, but an earnest Christian gentleman, loved by all who know him. His influence will be for good."

Some years ago we gave a brief biographical sketch of him as a bee-keeper, for then he had not come before the public as a State servant. I have obtained a sketch of his political career that I take a real pleasure in submitting to our readers, because it is something that any one may well be proud of — not so much for its accomplishment of all things attempted as for the earnest *purpose* in the cause of right and justice underlying it all.—ED.]

His political career, outside of his township and village, was rather a surprise to him. In the fall of 1892 there seemed to be no candidate in his district for Representative in the State Legislature. His party had not elected a full county ticket in twelve years. The county committee were casting about for some one to lead the ticket, and the chairman suggested Mr. H. as one who had always been a true Republican, and did not have an enemy in

the county. The committee at once decided that he was the man if he would run. He was waited upon to see if they could use his name. At first he told them no, as he did not feel competent to fill so important a position if elected; but he said he would counsel with his wife, and report soon. She urged that he was competent, and ought to run if the party demanded it, though defeat was probable. That settled it, and he was subsequently nominated by acclamation. His opponent was nominated upon two tickets; but Mr. H. had a plurality of 425, and the entire ticket was elected.

The Speaker of the House, learning of his interest in behalf of good roads, made him chairman of the Roads and Bridge Committee, and in this capacity Mr. H. succeeded in passing the Good-Roads Bill, known as the "County System." Several counties have adopted it, and it is a success. Judge Hatch, of Bay City, wrote him as follows: "In ten years half the counties in the State will adopt it, and in twenty years Michigan will be a State of good roads.



HON. GEO. E. HILTON.

He was also interested in a bill tending toward reclaiming the semi-barren lands that Ernest saw in going from Flint to Manistee. There is no doubt these lands may be made fertile. The members from the lower portion of the State "stood in their own light," and the bill failed to pass, by five votes.

The other matters of legislation two years ago were of a local character that pleased his constituency so well that last fall they concluded to send him back, and he was again nominated by acclamation. The enemy said he should not go back, and succeeded in nominating the supervisor of his own township on their tickets, and yet his ticket in the first column looked decidedly lonely. But the harder the task, the harder one fights; and the result was a plurality of 923, and again every man on the ticket was elected.

He was, for his second term, given the important chairmanship of Committee on Railroads. In this capacity he has seemed to be able to please both

the railroads and the people. The Commissioner of Railroads, Lansing, Mich., at the close of the session, among other things said of Mr. Hilton that it had not been his lot to be associated with a man who had acted so impartially.

Among the numerous bills that Mr. H. was interested in, perhaps none received more attention than the one providing for a normal school in Northern Michigan; but in this matter we will let others speak:

The speech of Mt. Hilton, who pleaded earnestly for the farmers, pioneers, and home-makers in this comparatively new country, was most effective, and every representative listened and was touched. This section being new, and very remote from all the educational institutions of the State, the home-makers were unable to give their children the advantages so necessary to prosperity and happiness, because they are unwilling to be separated so long and so far, and because their means are limited, and must be wholly used in preparing the home. The impression made by Mr. Hilton was complete.—*Northwestern Tribune*, Mr. Pleasant, Mich.

Ed. Indicator:—Being present when the Central Michigan Normal-school bill passed the House, I heard the speeches made for and against it; and in justice to your Representative, Hon. Geo. E. Hilton, I want to say to your readers, through your paper, that, of all the speeches made (and there were seven), that of Mr. Hilton's was pronounced by all who heard them, to be the ablest in argument, best in delivery, and most convincing in result. Mr. Hilton plead earnestly for schools and education generally, and especially for Central and Northern Michigan—these newer counties where the young do not have the opportunities offered that the older counties are provided with. It was a warm fight, and a grand victory for the partially settled counties north of the capital, and Mr. Hilton threw himself into the cause and made a fine speech. It was in support of Senator Shaw's bill; and thus Newaygo County has the honor of furnishing two champions for the noblest work of all—the education of the young. LISTENER, in *Fremont Indicator*.

Mt. Pleasant, Mich., June 6.

During the last session of the Michigan Legislature there was a bill introduced by a member who had had a terrible experience as the result of bees being kept too near the highway. He and his friends were badly stung, and a span of horses he said he would not have taken \$300 for were stung to death. There seemed to be other members who had been stung, or knew of others who had been stung. When Mr. Hilton saw that the bill was going to pass, thus preventing the keeping of bees within 90 feet of the highway, he told the members that it would lead to endless litigation and family quarrels, and debar any one, owning a lot not to exceed four rods square, from keeping bees. He introduced an amendment so that it should read "from the center of the highway." The amendment was, however, defeated, and the original bill passed, and is now a law.

There was another bill introduced, making it a misdemeanor not to spray fruit-trees for the purpose of killing the enemies of fruit. This came from a horticulturist, and was a good bill for the orchardist. Mr. Hilton explained that it was worse than useless to spray while trees were in bloom, and succeeded in amending the bill, making the same penalty apply if trees were sprayed *while* they were in full bloom. The orchardist, knowing the bee to be his best friend, is pleased with the bill, which was passed as amended, and is now a law.

Last winter at Detroit he was elected a delegate from his district to attend the National Convention of Republican League Clubs, held at Cleveland June 19, 20, and 21.

[When I asked for a good photo of Mr. Hilton, the latter, in sending his own, sent along a couple of others that were, I thought, too good to be confined to the narrow confines of my own album, and I therefore asked friend H. if I might use them for the pages of GLEANINGS. To this he kindly consented. While our Michigan friend may or may not have a pardonable pride in his career as a bee-keeper and legislator, he *can't help* feeling a fatherly pride in those children.



There is one more thing I must say; and that is, in reference to railroads. We are too apt to feel that they (or, rather, their management) are only selfish and grasping. Mr. Hilton, who has had abundant opportunity for observation, says that he has not found them wholly soulless; that, if they are approached in the proper manner, they will, if it is just and right, oftentimes grant important concessions.—ED.]

ner, they will, if it is just and right, oftentimes grant important concessions.—ED.]

DUMMIES OR DIVISION-BOARDS.

BALLED QUEENS; QUEENS CRAMP; ALFALFA
A SUCCESS NEAR DR. MILLER'S.

By Emma Wilson.

Mr. Editor:—I don't quite understand your footnote on page 623. You say, "I very often pry over the entire set of frames clear to one side. This gives ample room for the removal of the division-board." Our frames are always pressed up tight against one side of the hive, leaving all the room possible for the dummy, to begin with. We could not possibly pry them any closer, no matter how much we might try, and I don't see how we could make any more room for the dummy than we have when the hive is first opened. Please tell us how your frames are arranged.

You also say that you call the dummy the division-board. Why? We have used both dummies and division-boards; and, while they are very similar, they are not exactly alike, and are not used for the same purpose. A division-board is used to divide the hive into separate parts, while a dummy is used to fill up space. Our dummies are smaller than our division-boards. If it is not incorrect to call the board in question a dummy, it is certainly better because shorter. If you don't call it a dummy, what do you call a dummy?

As I intimated before, the dummies seem to work all right in the hives with the latest Hoffman frames.

On page 635 George W. Martin says, after he clipped the queen she was balled; and on smoking the bees off he found her stung to death. I think that, if bees are left to themselves, they rarely sting a queen immediately after she is balled. Most likely, if he had closed the hive quickly he would have found the queen all right the next time he opened it—at least, it has worked that way with us. Blowing hot smoke directly on bees when balling a queen is about the surest way to cause them to sting her to death immediately. A very good way to free a queen, although it is an old way, is to drop the ball into water, when the bees will separate, and the queen can be easily picked up without any damage to her. I've never known a queen to be injured while freeing her in this way.

We had a very curious experience to-day, Aug. 27, while clipping a queen. Immediately after she was clipped she curled up and appeared to be dead or dying. She had caught her foot in the hind part of her body, and remained in that condition for some time. Just as soon as she was released she was all right again. Dr. Miller says he had read of such instances, but in all his experience he never saw any thing of the kind before.

About the first of August, while on our way to a Sunday-school convention, when we were six or seven miles from home I called the doctor's attention to a field of hay that was just ready to haul, by remarking, "Do you see that hay? It is the heaviest crop of hay I've seen for a long time." Dr. and Mrs. Miller were expressing their surprise when Dr. M. suddenly exclaimed, "I do believe it's alfalfa," and was out of the carriage very quickly, and found that it really was a large field of alfalfa. We halted and had quite a talk with the German who rented the place. He said that was the second crop they had cut this year. He was very enthusiastic in regard to its value, especially when fed to cows. He said this was the third year since sowing. If he could get such a crop of hay this year, when the hay crop was almost a total failure on account of drouth, it seems to me that alfalfa will prove to be a great boon to farmers. I wonder if it's not a little difficult to get a good stand in the first place. But, once there, it will come up of itself year after year. May be that's where our future honey crops are to come from.

Marengo, Ill., Aug. 27.

[Division-board is used by us in the catalog because it is an old name; and we don't like to confuse beginners by the change of a name, even though the new one might be, as it probably is in this case, more accurate. Experience that you and Dr. Miller can not appreciate has taught us the folly of these changed names when so *very* little is to be gained.

As you suggest, with the new-style Hoffman there is more room for the removal of the board than the old-style or real Hoffman. In the case of either, there are times when it is easier to take out a frame first. I myself follow no invariable rule.

I have had queens cramp in this way a number of times; but even when disengaging the foot, the "cramps" didn't go off immediately. I have had queens cramp or kink up their bodies when I was quite sure the feet were in no way responsible. I never knew the cramps to prove fatal to the queen.

In regard to the balling of queens, your experience is quite in line with ours.—Ed.]

THE POPPY

AS A HONEY-PLANT; HOW THE BEES REVEL IN IT.

By Em Dee.

There are a few facts a close observer may notice, though he be but a tyro in bee-lore. I have read, and heard mentioned, the many and various flowers from which honey-bees mostly obtain their substance, and this summer I have taken special interest in observing their caprices among the flowers in my front yard. Passing by all other blossoms that have been mentioned by old and interesting observers I come at once to the flower which seemed most to interest them, and which I have not elsewhere seen mentioned—the poppy. I have, perhaps, a hundred different flowering plants on the premises, and, by reason of frequent irrigation with the garden-hose, it may reasonably be conjectured how thriftily those plants are kept in growing mood. All flowers received a liberal share of attention—some more, some less—some for honey, some for pollen; but I can safely say that none were so sedulously courted, none so pronouncedly caressed, as the single poppies, often termed "golden-gate." Early morning found from one to half a dozen of the mellifluous insects upon each newly opened petal, and at dusky eve they were still to be seen actively filling their pockets with a pale-yellow pollen. But what most attracted me was the manner of their working, their reckless "bee-havior" in the frantic acquisition of the elements they wished to secure. Both Bro. York's Italians and the writer's German bees were equally rampageous. They had forgotten their staid and decorous methods, and now abandoned themselves to acts of apparent lawlessness. They pounced down, regardless of previous possessors, and rolled in the mealy substance until every pistil was divested of its golden powder, and off they go, heavy laden, to their homes.

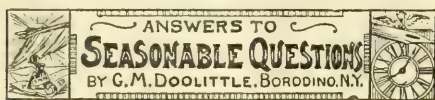
The question uppermost in my mind was, and yet is, whether possible that they obtain some particles of the narcotic elements of the plant (the poppy being, as your readers well know, that from which opium is made), which, if so, would account for their hilarious antics;

or if the joy of feasting on so luscious and abundant supply reasonably accounts for the peculiarity noted.

The suggestion seems pardonable, that, in view of so effective pasturage, would not all bee-keepers do well to sow abundantly of seeds productive of so beautiful flowers as the poppy? A profusion of these glorious blossoms greets the industrious each morning, more attractive, in their various colors, than the rose. They require no special cultivation; any kind of ordinary soil is available; and the results in the bee-hive speak volumes in praise of the poppy.

And lest me ask "ye editor" if the special flavor Mr. Root noticed in Bro. York's honey—regarding which GLEANINGS asks—may not be solved by the suggestion just made; i.e., may it not be the poppy that has given the honey the unaccountably delicious "bookay"?

[It is possible; but I should hardly think there would be enough of such plants to make any appreciable flavor in the hive. It takes acres and acres of blossoms to make any sort of showing in the hive.—ED.]



HONEY FROM RED CLOVER.

Question.—Reading in one of my papers not long ago, I came across the statement that red clover is a honey-producer, while I have been told by my neighbors that it is not. Will you please tell us which is right? I am a beginner in apiculture.

Answer.—Well, perhaps both, as they view it from different standpoints. Red clover is certainly a honey-producer; in fact, I believe that red clover gives more nectar than any plant or tree I know of, not excepting that famous honey-producer the basswood, or linden. I never pulled the blossoms from a head of red clover yet but there was honey or nectar in them, no matter at what time of the year it was; and the result is always the same, year after year; so I think that the question should be settled by this time in the fact that red clover always secretes nectar, or produces honey, if you please. Now, this fact does not clash in the least with the statements of your neighbors who have told you that the honey-bee does not work on red clover, as that is what they undoubtedly mean by red clover giving no honey. A plant may secrete honey profusely, and yet the blossom be so shaped that the honey-bee can not reach this honey without the aid of some other insect to break open the corolla, as is the case with the flowers of the plant known as "comfrey," and with the blossoms of the common whitewood. In both of these the wasps and other insects bite through at the base of the flower to get at the

sweets, after which the honey-bee swarms about these bitten flowers and collects what the wasps do not consume. In certain seasons, and in some sections of our country, the corolla of the red clover grows so short, from drouth or otherwise, that the honey-bee can reach the nectar secreted by the blossoms, in which case we get large yields of honey from red clover, as was the case in this locality some years ago, when my yield from each hive averaged 60 lbs. of very nice comb honey, after the basswood and all the other flowers which yield white honey were out of bloom. In other seasons the secretion of nectar is fully as good as it was then; but the corolla is so long that it is of little use except to the bumble-bees, as wasps and insects do not bite the clover-tubes. Any person viewing the fields of red clover at this latter period, with a view of deciding as to the value of this plant to the honey-bee, would be apt to decide that "honey-bees never work on red clover." As a whole, we can hardly calculate on much honey from this plant, for there are far more years in which the bees get little or nothing from it than there are those when the hives show a gain while it is in blossom.

HONEY CANDYING IN THE COMBS.

Question.—A statement appeared not long ago in one of our papers, to the effect that honey rarely candies in the combs, the same being made without any qualifications. Is such the case? I am sure I have seen combs nearly solid with granulated honey.

Answer.—If the honey is left in the hive the year round, then the above is very nearly correct; but I have never, in my recollection, had sealed honey away from the bees over winter without its candying, except where it was kept in a room kept warm by a fire all the while. Now, while this candying of honey in the combs is of no great disadvantage when such honey is to be used by the bees for the purpose of feeding, yet it is a great misfortune to have much of it in partly filled sections which are to be used the next season as "bait sections," as they are termed, when they are used to start the bees at work in the sections earlier than they otherwise would. Where thus used the bees do not remove this candied honey, but, instead, put the new into the same section with it, which gives the section of honey, when completed, an uninviting appearance, thus causing the same to become nearly a drug upon the market. To obviate this difficulty, all the honey remaining in partly filled sections should be removed in early fall, either with the extractor or by placing them over colonies which need feeding, so that the bees may remove the honey and carry it down into the hives for winter supplies. The sections can now be stored away in good shape for future use.

TAKING SECTIONS OFF THE HIVES BEFORE THE CELLS ARE ALL CAPPED.

Question.—I am told that no section should

ever be taken from the hive till fully sealed over. Is this right?

Answer.—As a general rule this is good advice; but there are times when the yield of white honey is just over, and the yield from buckwheat or dark honey is about to commence, that a loss in price may be the result if this is strictly adhered to. Mr. Quinby said, and with much truth, too, that all boxes two-thirds sealed over, containing white honey, should be taken off before buckwheat honey was stored in them at the beginning of that yield, as partly capped boxes of white honey would bring more than when finished with dark honey. But I think I hear some one say, "If I take off honey before all the cells are sealed, it is liable to sweat and become sour." This is because the honey is kept in an improper place, such as a cellar or other cool damp place, where the best of honey will deteriorate in time, and become unfit for food. All honey should be stored in a dry airy room, which can be kept at a temperature of about 90° all the time, and in such a place the honey will be growing better all the while, whether sealed or unsealed. In this way it soon becomes so thick that the honey in these unsealed cells will not run out in crating; and if tipped over, not a drop will be found to daub the rest, which daubing is always spoken of as the reason why honey that is unsealed should not be removed from the hives. Thus I would always advise leaving honey on the hives till it is sealed, with the exception of times when other honey of an inferior nature is likely to be stored with it.



POLICY OF GLEANINGS ON TWO POINTS INDORSED.

Allow me to congratulate GLEANINGS on adopting two things as I urged. The first is raising queen-cells in full colonies. In the second, you are all right so far as you go, but you do not go far enough—that is, burning the foul-brood hives, combs, and frames. You expect the bees. No, sir. Burn *every* thing as you would poison ivy or smallpox rags. Then publish what you did, as a moral influence with others. When you find it within "7 miles," or 10 either, of you, urge the owner to burn the whole business after dark when every bee has been smoked in and fastened in. Don't waste time and brains arguing with us that the queen or bees will not infect other combs. Burn all.

If the owner lacks public spirit, or is too mean or shiftless to do it, then trade him a colony of equal description and weight from your own yard, then after dark smoke in the bees of

his infected colony; carry it to one side, and make a bonfire of it.

The diamond-shape trouble in sections in T super can be avoided by using another set of T tins at the top of the sections—that is, two sets of T tins for each T super.

Ingram, Pa., July 3. PHILO S. DILWORTH.

[Friend D., I entirely agree with you in your policy regarding foul brood. Ernest might not think exactly as I do, however; but after watching the thing for a good many years, I think I should sleep better to know that every thing pertaining to the business was thoroughly burned up.—A. I. R.]

ZINC TAGS.

We use zinc tags and write on them with a common lead-pencil. When we wish, after using these zinc tags, to clean them so that we can use them again, we use diluted hydrochloric acid and muriatic acid. The lead-pencil writing on zinc (old zinc is best) appears to be indelible.

Syracuse, Kan., Aug. 5.

Z. T. B.

NUMBERING HIVES AND LABELING TREES; CORRODED ZINC TAGS.

While you are discussing number-tags for hives, perhaps some of your readers would like my way, which is, to paint the numbers in large figures on the hives, using black paint. Sometimes it is quite a convenience to be able to read the number several rods away. Or if a tag is preferred, a good one can be made of a small square of old zinc; if slightly corroded, so much the better. Write what you wish on this with a black lead-pencil. I use a carpenter's pencil, which makes a wide mark, though the writing will remain legible for years if done with a fine-pointed pencil. These, tacked to stakes, are used by nurserymen to mark rows of trees.

By the way, I have used with much satisfaction a tree-label of the same material, which I saw illustrated in the *American Agriculturist* many years ago. The zinc is cut into a long triangle, an inch or more wide at one end, and eight or ten inches long, with the name on it thus:

BALDWIN.

The small end is then wound three or four times around a twig. It will not bind the twig so as to injure it, as it unwinds with the growth of the tree, and it retains its place until removed purposely.

BURDETT HASSETT.

Reliance, Va., Aug. 27.

BEEES IN A COFFIN, IN CHINA.

After I had seen bees in a table-drawer, in a box bed, under a counter, and under the floor of a Mohammedan mosque which is to be found here in Shaowu, I thought the possibilities had been pretty well nigh exhausted. But one day

I went up to a mountain village to visit a Christian. His father and mother were very aged, and, after the common custom of the land, he had their coffins all ready, finished up and varnished over nicely, in a shed adjoining his house. The cover of each coffin rested loosely on it; and a swarm of bees, finding a place large enough at the edge of one of the covers, had taken possession of the coffin.

This part of China abounds in woods and trees, yet I have never, but once, seen a swarm of bees in a hollow tree. That one exception was in an immense camphor-tree which stood just at the entrance of a village. Chinese bees seem to be almost as much domesticated as cats or dogs. They have no special attachment to any particular place or person; and if their hive becomes infested with moths, or in any way unacceptable to them, they abscond; but, so far as I have observed, they always locate in or near some human habitation. Buddhism makes a Chinaman loath to take the life of any thing not hurtful; and the coming of a swarm of bees to a house is considered a lucky event, bringing good luck. The operation of these two causes has made human habitations the safest place for bees for ages past, and the consequence seems to be a domesticated race of bees.

In this climate, where frosts are rare and severe freezes are unknown, we build our houses with a double wall made of lath and plaster, one on the inside, the other on the outside. This leaves an empty space, about six inches wide, between the two faces. One of our houses here is just now unoccupied, the family being away for the summer. A few days ago a swarm of bees, finding a crack between the mop-board and the floor of the veranda, located themselves between the walls of the house. This is another instance of the propensity of Chinese bees to locate themselves in human dwellings.

Shaowu, China, June 4. J. E. WALKER.

FAX.

Best time fer spreadin' brood is—after the brood has hatched.

Bees kin be united without enny fightin'—in the pupa stage.

Good queens will sometimes lay more eggs in the spring of the year'n the bees kin kiver.

If a feller knowed all about the hunny-bee he'd have to know all about God himself, and that is impossible.

I'd ruther be in it every yeer with a few good colonies well taken keer of than to be out of it half the time with a hull gee-raft.

I make my supers hump themselves so as to hold 32 sections, and, after keerful testin', I have found that a helthy kolony will complete that menny jist as quick as they will 24.

Baitin' supers is like feedin' katnip tea to young infants—it may not do enny harm, but does it axually do enny good?

By way of 'speriment, sirup made of granulated sugar wuz fed thick enuff to harden before the bees kapped it over, and the kolony pulled through the winter, owin' to the moisture in the atmosfeer, I s'pose.

Hybrid bees kin hear when they are tryin' to git at you through your veil, as the follerin' 'speriment proves: Set your teeth together and give the grand hailin' sign of a bee in distress by imitatin' the sound a hunny-bee makes when pinched, and thay will redouble their efforts to sting you. Try it.

If bees hain't protected frum heat, comb built on wired foundashun will sag in two er three seezins' use until drones will be razed along the top-bar. It's a fax.

Durin' apple-bloom, queen-cells wuz started; and then several days after, when they order o' knowed better, with hardly enny hunny left, and none comin' in, the bees k'menced throwin' off swarms—which is a proof that the presence of queen-cells is a powerful cause of swarmin'.

FATE.

See me, see me as I rush
To the lightin' board, and brush
Off my coat of yellow plush,
Ready fer a romp and play
Round the apiary to-day!
I'm a dandy, so thay say,
And for beauty stand alone
'Mongst the bees—and I must own
Up that I'm a *hand-picked drone*!
But, alas! the farmer's hen
Happened 'round that way jist then—
She belonged to the Shanghigh
Breed; and when she got her eye
On that drone she nabbed him by
His plush collar, and in two
Seconds he wuz gone frum view
In a happy "hum, sweet hum,"
Whare all bees must go to sum
Sweet day; and now he must own
Up that he's a *hen-pecked drone*!

Alexandria, Ind. ELLERY KRUM.

Bees have not done much for three years until the last two weeks. Now they are booming. It's from second growth of white clover, Japanese buckwheat or corn, or altogether. Prospect is good for fall honey. We have had abundant rains. THOMAS SHEPHERD.

Barry, Ill., Aug. 9.

Bees have done well this season. I have 3000 lbs. from 40 colonies, spring count, and 25 swarms. There are good prospects for 100 lbs. per colony, spring count. I am selling the honey at 10c per lb. This honey is all extracted, and fine quality. WM. MALONE.

Newbern, Iowa, Aug. 22.

COMMON SWAMP MILKWEED—ASCLEPIAS INCARNATA.

I mail you a flower to be named. It is becoming more plentiful here in my vicinity, and

is an A No. 1 bee-plant. I think it belongs to the milkweed family. Last year I got considerable surplus from it. The color is very light amber, and a peculiar spicy flavor not similar to any other honey I am familiar with. Here it blooms from July 1 to Sept. 1; and were it plentiful enough I would not exchange it for any honey-giving plant that grows here. Give me the proper and common name if you can.

Belleville, Ill., Aug. 20. E. T. FLANAGAN.

[The specimen, as nearly as we can identify it, is known as common swamp milkweed, *Asclepias incarnata*.—ED.]



THE *Kansas Bee-keeper* is growing better as it grows older. It has had a good start as a youngster, only nine issues old.

ALTHOUGH this is supposed to be the duller part of the year, we are full of business. Verily, the goods that go out from the Home of the Honey-bees are doing their own advertising.

SOME of the convention notes and comments will be found in A. I. R.'s talks in this issue. Others will be given by J. T. Calvert, in this department.

OUR newly equipped factory is being put in running order as rapidly as possible. A good many machines are now started, and we shall have all of them in full blast by the first of October.

THE frequent rains, and the abundance of fall flowers, especially of the great family of asters, give great promise of a fall flow of honey. Indeed, it is already coming into our hives now. Buckwheat is also doing well.

WE are again printing an extra number of copies as usual, and, for any thing we can see, shall have to do so for several numbers to come. Advertisers should not fail to take advantage of this extra circulation, for we charge no more for the space, although we add one-half to the regular number printed.

THE representative bee-women, including Mrs. L. Harrison, Mrs. Axtell, Miss Wilson, Mrs. Sherman, and Mrs. Heater, are shown up in half-tone on the first page of the *American Bee Journal*. It is a pity that so many of our representative women refuse to let us have their photos. Indeed, as it was, Bro. York, if I am not mistaken, had to take some of them by surprise.

A VERY pretty sight in front of our factory building is the merry humming of hundreds of bees on a couple of beautiful beds of portulacas. If we had acres of this, instead of ragweeds and other noxious weeds that do nobody any good, what might we have in the way of honey? If you haven't a bed of portulacas, better have one by another year.

QUITE a number of specimens of fall honey-plants are now being sent in to us for identification. Some of them have been forwarded, the sender asking if they were alfalfa. I could not imagine why there should be such ignorance regarding this plant until I looked the matter up. I then found there had never been a decent engraving made of this celebrated plant—at least, I had never seen one. The A B C of Bee Culture has one copied after a picture in a seed catalog, which was itself poor in the first place. I should be glad if our readers would refer us to a good engraving, or send us good specimens when the plants are in full bloom. I am determined that, by another year, there shall be a good picture, so that all may know when they see the plants, without calling in the services of a botanist.

FATHER LANGSTROTH AGAIN AT THE FORE-FRONT.

ONE of the notable features of the last convention of the North American at Toronto was the presence of that veteran of all bee-veterans of the New World, father Langstroth, the one man of all the world who gave bee-keeping its first real important start. Although he has been an invalid all his life, he still survives his 85th year. Indeed, his health has so far improved that he has resumed his pen. We already have one article from him, and the same will appear in our next issue. He hopes, health permitting, to finish up his interesting Reminiscences that were begun October 15th, 1892, and which, owing to the recurrence of his old head trouble, had to be discontinued in the May 1st issue of the next year. These Reminiscences were exceedingly interesting, and it was a great disappointment to us all that it should seem necessary to drop them when it seemed probable that, owing to his advanced age and ill health, they would never be completed. Mr. Langstroth is now at work upon them again; and, if all goes well, the hopes of his latter years will at last be realized.

BEEES AND COUNTY FAIRS, AGAIN.

OUR older readers will remember that we had trouble in times past by our bees helping themselves at the candy-stands while our county fairs have been in session from year to year, within a quarter of a mile of us. For the last two years you will remember we have drugged the bees with tobacco smoke, and cautioned the candy-men to kill the first few bees that

came around, and that they were not to let one of them get away with a load to bring back ten more. You will remember how well the scheme has worked. But this year our county fair was visited by some copious rains, and we therefore relaxed our usual vigilance in our apiary, thinking that the frequent rains would keep the bees in. It did, of course; but the sunshine came out at one time, and I went through the apiary to see what they were doing. I soon made up my mind that they were flying a little too briskly in the direction of the fairground to be engaged in legitimate business. I told our man to be on the lookout, and in the mean time I would go over to the fair. Sure enough, the bees were having a "perfect pow-wow" on broken watermelons. They had got started, and now the question, could we stop the mischief-workers at this stage of the proceedings? I hastily made my way back to the apiary, and both of us—the apiarist and I—began tobacco-smoking the strong colonies, first at the entrances, especially at those entrances where the bees were flying heaviest, and, presto! the flying ceased. After having gone over the whole yard, including the nuclei, I noticed that there were but very few bees flying. Again we went over the yard, this time to smudge the bees that had returned, and then I went back to the fair. It is almost unnecessary to say that there was a decided "let-up" on the part of the bees at the candy-stands and places where watermelons were sold by the slice.

You see, the tobacco drugged them; and as it takes them two or three hours to get over the effects, another smudging would last them nearly all day. The whole point of this is here: There will be more fairs yet in other places; and bee-keepers should take the hint in time, because they can not afford to have their bees declared a nuisance, or get into trouble with the "fair" people of our land.

MORE ABOUT THAT SALISBURY BEEF-DIET CURE —ITS EFFECT ON E. R. R.

I HAD fully matured my plans to be present at the Toronto convention, now a thing of the past; but a "temporary setback" in health at the time of going made it seem at the last minute inadvisable to leave home. A rigid following of the doctor's orders, and a strict adherence to the diet as explained in our previous issue, has brought me around all right. Indeed, I haven't felt so well in years.

As a good many have inquired after my health of late, being surprised that I had been "down" at all, I will say, for the benefit of those who may have been ailing like myself, and for those kind friends who have shown such friendly solicitude, that the Salisbury beef-diet cure is really performing wonders. Before I go further I want to say that this is no paid puff; so, keep that before you.

For several years back I have had indigestion,

chills, frequent attacks of grip, violent sneezing-spells—so violent, indeed, that I was seriously afraid of bursting a blood-vessel or something of that kind. In addition I found a growing incapacity for office work; dull headaches, accompanied by insomnia. Nervousness? oh, dear! I could have kicked the cat—any thing and every thing to relieve my pent-up feelings. Of course, I was on the verge of nervous prostration; and another one of those attacks of "la grippe," I believed, would finish me. Last winter, and this spring and early summer, the symptoms were worse. Bicycle-riding—that which had years before seemed to relieve me—was unavailing now; in fact, I hadn't strength enough to ride.

Now all this is changed. While I haven't recovered yet by considerable, it is evident that I am gaining rapidly. I sleep beautifully nights—that quiet, restful sleep that I haven't known for months; chills have all disappeared, and so have the sneezing-spells. Indeed, these last two disappeared in about two weeks' time from the beginning of that diet that means total abstinence with a vengeance, from every thing, almost, save ground lean meat. My normal strength and endurance are far from back, but are coming so rapidly that I have no fears but that they will have fully returned, and more.

Formerly when I ate my meals, even though I ate to the fill, I was not satisfied. I was starving to death with plenty to eat. Now I sit down to the table, and, even though my rations are limited, what I do eat *nourishes*, and gives strength; in short, I rise from the table now well and *sufficiently* fed.

Now, dear reader, if you are ailing as I have been, don't try to go on to this treatment alone without the advice of Dr. Salisbury, of New York, or Dr. Lewis, of Cleveland. I consult Dr. J. M. Lewis, 176 Euclid Ave., Cleveland. He has, under my own eyes, performed some remarkable cures—yes, saved even consumptives in the last stages.

In conclusion, let me say that neither Dr. Lewis nor Dr. Salisbury pays us one cent for this notice; and, indeed, we wouldn't take it from them, even if proffered, for they are not of the quack kind who seek notoriety through "great big puff ads." This statement, as was also the previous one by A. I. R., in the Sept. 1 issue, was written without their knowledge or consent. Our only motive is to help our fellow-men through the slough of despond, on to that plane—good health.

CAN QUEENS TRANSMIT FOUL BROOD?

R. L. Taylor, in the *Review* for September, while admitting that it may be possible for a queen from a foul-broody colony to transmit the disease to a healthy colony to which she may be introduced, rather doubts it. He took a queen from a colony badly diseased, and gave her to a healthy one, and this colony has pros-

pered through the season, and is perfectly healthy. A few years ago, when the disease raged with us so badly, I took at different times queens from a dozen badly affected stocks, and gave them to healthy ones. These remained healthy in every case. Of course, one swallow does not make a summer, nor do a dozen such swallows. But in all my reading on things apicultural, I do not know of one real good authentic case proving that a queen ever did carry the disease. The principal ground for belief in such transmission seems to be based on what Cheshire saw, or *thinks* he saw, as *Bacillus alvei* (foul-brood germs) in the ovary of the queen. In the first place, microbes are so numerous, and diverse in their character, that even the best of scientists are liable to be deceived; in the second place, even if the bacilli were actually there it does not follow that they would enter into the larvæ. All the facts and indications seem to show that Cheshire was mistaken. Where practice is at variance with theory, or, if you please, science, we will take practice every time.

THE ACTION OF THE N. A. B. K. A. REGARDING AMALGAMATION.

FROM the action taken at Toronto, the amalgamation of the North American Bee-keepers' Association with the National Bee-keepers' Union is all but a foregone conclusion. After discussing the matter pro and con, those who seemed to be opposed to the union of the two, and those who favored it, were very near together. The suggestion of Dr. Mason, in the September *Review*, was in large measure followed, except that the committee appointed to consider the matter, instead of waiting till the next annual meeting of the N. A. B. K. A. to report, is expected to complete its work within a month. It is then to report through the bee-papers, submit its findings to a vote of the members of the N. A. B. K. A., and also to the members of the Bee-keepers' Union, along with its next annual report. If accepted, the amalgamation is effected, and thereafter only one organization will exist in place of the two. The proposed name of the united organization is the North American Bee-keepers' Union. It is proposed to continue the office of the General Manager, elect a president, secretary, and treasurer, and board of directors, voting to be by mail, giving all members a vote, whether present at annual conventions or not. The defense fund of the Union is not to be impaired. One dollar, or whatever fee may be deemed advisable, will entitle any one to the full benefits and privileges of membership in the united organization, instead of one dollar in each, as at present. The benefits and advantages will be greatly increased, and at a less cost; and every bee-keeper in the land, who owns any considerable number of colonies, if it be not over a dozen, can not afford not to be a member.

The committee appointed were Thos. G. Newman, for chairman, and Dr. A. B. Mason, R. F. Holtermann, and J. T. Calvert, and three others whose names I do not now recall.

THE practice of circulating special circulars and dodgers, as was done at the last meeting of the N. A. B. K. A. during its sessions, was not very creditable to the writers of such matter, or considerate to those in attendance, especially the persons who happened to have the floor at the time. If the pet notions and supposed grievances of the writers of these circulars can not be brought to the attention of bee-keepers in any other way, it were better that they remain in oblivion. Such practices were condemned at the time, and always should be. We refer to the distribution of the pamphlet entitled "Bees," attacking Geo. W. York and others, by Frank Benton, and a dodger advertising a booklet by W. F. Clarke, defending sugar-honey production, and attacking Ontario's foul-brood inspector, Wm. McEvoy.

G. M. DOOLITTLE's genial face and eloquent words on some things of interest to bee-keepers were a treat indeed. The address deserved a larger hearing. His first plea was for more brotherly love, less desire for honor and self-aggrandizement, more willingness to impart, for the common good, valuable ideas gained in our own experience. "Freely ye have received, freely give." Along the line of honey adulteration he believed that more work (detective work if need be) and less talk would accomplish a great deal more. At present, though a great deal has been said, practically nothing has been accomplished to stop adulteration. Here is work which the Union ought to take up. If a few examples were made in convicting and punishing adulterators they would be more careful.

ONTARIO bee-keepers are to be congratulated for the strong and able allies they have in Hon. John Dryden, Minister of Agriculture, and Jas. Mills, President Ontario Agricultural College. Their able addresses at Toronto showed their deep interest in our chosen pursuit, and pledged co-operation as they have given it in the past. With such friends in high station it becomes an easier matter to obtain government grants to help make an organization of bee-keepers valuable.

THE paper by Allen Pringle on the mistakes of bee-keepers and bee-papers was a most excellent one, brim full of good points. To be sure, we could not all agree to all of the mistakes, but it would be strange indeed if no mistakes were made in treating such a theme.

THERE is some hope of the early publication of the report of the St. Joe convention if Mr. Benton carries out his pledge to the convention at Toronto.

THE TORONTO CONVENTION.

HOW I CAME TO GO.

"Doctor, do you mean to say your treatment will cure *all* kinds of chills, grip, hay fever, etc., in the short period of time that you have cured me?"

"Oh, no! certainly not."

"Well, then, how did you dare tell me that you would have my overcoat and trappings off, and have me clear of my chills, neuralgia, toothache, etc., and say I could stand the north wind, all inside of ten days?"

"Simply because I saw at once that you had no organic trouble. Your organism is all sound."

"Well, then, why can't I have a little rice or dry bread, such as you give Ernest and your other patients, to go with their meat? I am all cured of the chills, and what more do I need?"

"Because the chills, etc., were a secondary matter—a trifle compared to the real trouble and cause. We want to hold you down to the clean lean meat until you get over all tendency toward the chronic dysentery which has been getting a pretty fast hold on you of late. This tendency to constipation we are battling with is a part of it. We want to get this straightened out so your bowels will move regularly of themselves every day, or, at the furthest, every other day; then we can safely let you have a little variety with your meat."

"But, doctor, won't a sparing diet—that is, just a little of other kinds of food, so the patient can eat just what would be digested thoroughly, and no more—answer as well as, or almost as well as, this exclusively *meat* diet?"

"Being careful not to overeat, and eating just enough and no more, is a very important part of the treatment; but it is not all of it by any means. Lean meat as a diet has a special value. Other people have found this out, and it has been recognized for years. Your prize-fighters are trained on a beef diet; so with runners and the boat-rowers, the wheel-riders, and the base-ball players. They are cut off from tobacco, coffee, beer, and drink only pure water, as you do. They are also kept on lean meat until all useless weight is cut down. You see, we are really training you to be an expert wheel-rider. You have got your weight down from 135 to, say, 115; and pretty soon what you have left will be just the purest kind of muscle."

After I got home that evening I was thinking of it; and as I had been very busy during the day I got out my wheel by moonlight. Let me explain here that the doctor rather objected to having either myself or Ernest attend the convention. He said it would throw us out of our "training," and would interrupt the rations and hot water, and probably be quite a little setback to our progress; and Ernest decided finally that he could not stand the trip. It seemed to me, however, that at least one of us certainly *ought* to go. I sprang on my wheel, and started off by moonlight. The wheel seemed lighter than it had ever been before. The further I went, the lighter and prettier it seemed to run; and I soliloquized that, not only had I a feather-weight wheel, but, without knowing it, I had been almost unconsciously getting to be a feather-weight rider as well. God, in his infinite wisdom and mercy, had been opening up to me new and unexpected revelations. The air was just cool enough to make it exhilarating. As I covered mile after mile, up hill and down, my spirits rose—aye, and strength too; and I resolved then and there that I would go to the convention and show the doctor that

I could hold fast to my meat diet and hot water, and my new strength also, at one and the same time.

Before taking the boat in Cleveland I called on the doctor and told him what I wished to do, and he gave me directions; and to make sure of getting my needed rations I carried with me one ration ahead, to be eaten cold, if I could not do any better.

While sitting on the deck of the steamer enjoying the cool north wind with the rest of the passengers, some one remarked this was the night of the eclipse; and, sure enough, there was the moon shining down upon us in all her fullness, brilliancy, and loveliness. I knew that regular rest and sleep were as important as almost any thing else; but I had an old boyish longing to see that astronomical program carried out. On board the boat I secured a splendid tenderloin steak, and enough for a good full ration too. Then I took a nap, calculating to awake in time to see the eclipse start. I hit it almost to a dot; but thinking it would not do for me to watch it very long, I slipped out of my stateroom barefooted. I detected the commencement of the shadow before any of the rest of the passengers, and became so absorbed in it that I stood out there barefooted in my shirt-sleeves, notwithstanding the north-east wind (so much dreaded but a few weeks ago), and watched until the shadow completely covered the face of the moon. Then I went to bed satisfied—no chills, no toothache, no inconvenience. By the way, it was wonderfully interesting to see the host of stars, mostly invisible while the moon was out in full, come out one after another until the total eclipse. Then we had a brilliant starry night.

Notwithstanding the inroads made on my sleep, I slept so soundly that, before sunrise, I was up and dressed, and enjoyed one of the most brilliant spectacles of colored clouds, just before the sun came up, that I ever saw in this climate or any other. Another tenderloin steak on the boat in the morning fixed me for the forenoon. The hot water was furnished me free, with the utmost good nature, when I made a little explanation. Although I offered pay, none was taken. They said on the boat that, if a man took a notion to drink hot water, and nothing stronger, he ought to be encouraged by having it furnished free, even if he did drink cupful after cupful.*

* By the way, there is something wonderful in the way the patient relishes and enjoys his hot water after he has been three or four weeks on the meat diet. For many years I have been much in the habit, especially while riding the wheel, of drinking soda-water, ice-cream soda, and such like temperance drinks; and when the doctor told me these would have to be entirely cut off, I thought it was going to be considerable of a privation; but now when I saw all sorts of soda-fountains on the steamer, and iced drinks of every sort all around the Falls, I had no longing at all for any of them. In fact, above all the delicious drinks that art and skill have been able to manufacture, and you may, if you please, include all kinds of beer and intoxicating drinks, I could honestly prefer my pure hot water to each and every one of them. Ernest has repeatedly said the same thing. Why, here is something truly marvelous. Even the Keely gold cure can not compare with it. Suppose you could have a company of people—a band of *men*, if you choose, for men are most addicted to expensive and costly drinks—suppose we had a band of men in our land who actually *prefer* pure water to any thing else the world can furnish; what would be the result?

Meekness, temperance; against such there is no law.—GAL. 5:23.

And the bright and encouraging feature of it is, that I think almost any one—no matter how depraved his appetite may have become—can be, by such a course of diet as I have mapped out, led to

Close to the depot at Niagara Falls is a temperance hotel. I have often been told in traveling, that temperance hotels never furnish as good accommodations as the other kind. I know this temperance hotel at Niagara Falls is not that way. They gave me a place to lie down and take my nap, and then as much beef-steak as they give four or five ordinary guests, and charged me just the same as the rest of the crowd—40 cents for dinner. The place is neat, clean, and comfortable, and the managers are courteous and obliging.

As we had but little time at the Falls, a carriage was hired to take our crowd—Mr. Calvert, Constance, and Carrie. The children were greatly afraid I would tire myself out, even though I reminded them again and again that I was training for a racer or a wheel-rider, and I enjoyed the fun of running and jumping, up stairs and down, and getting ahead of them. You see I am light as well as strong. When we got on the islands of the Three Sisters I remembered my corns, for it was a pretty hot day, and I was taken with a great desire to wade in the rapids above the falls. To my surprise, however, they loudly protested, declaring I would fall down on the slippery rocks, and get washed over the great cataract, like ever so many other people from time immemorial, by their thoughtless folly. I was inclined to resent the imputation that the rapids could wash down a live Root who had his wits about him—espe-

prefer and enjoy *pure water* to any other beverage the world can afford.

No doubt much of the intemperance in intoxicating liquors as well as other intemperate eating and drinking, is caused by disordered digestion. The patient is restless and uneasy, and craves this, that, and the other; drinks soda-water, Hires' root-beer, etc., in the vain hope that it may hit his trouble and make him feel better. Give us a natural, healthy digestion, and pure water, when thirsty, and it satisfies better than any thing else that has been invented. Is it not so?

From the "Yearbook of the United States Department of Agriculture" for 1894 I quote the following:

"I have come to the conclusion that more than half the disease which embitters the middle and latter part of life is due to avoidable errors in diet, * * * and that more mischief in the form of actual disease, of impaired vigor, and of shortened life accrues to civilized man * * * in England and throughout Central Europe from erroneous habits of eating than from the habitual use of alcoholic drink, considerable as I know that evil to be."—SIR HENRY THOMPSON.

And from the same book I quote from an article written by W. O. Atwater, Ph. D., the following:

We consume relatively too much of the fuel ingredients of food—those which are burned in the body, and yield heat and muscular power. Such are the fats of meat and butter, the starch which makes up the larger part of the nutritive material of flour, potatoes, and sugar of which such enormous quantities are eaten in the United States. Conversely, we have relatively too little of the protein or flesh-forming substances, like the lean of meat and fish and the gluten of wheat, which make muscle and sinew, and which are the basis of blood, bone, and brain.

Another most important fact stares us in the face right here. You know something of the trouble I have had in finding water I could drink with safety when traveling, especially after drinking from different wells and springs in different localities. Well, on this Toronto trip I drank water from many different sources, from wells having water strongly impregnated with different chemicals; but the water, before being used, was first made boiling hot, then cooled, a little at a time, in a saucer; in this way I could drink a pint, or even more, without any harm whatever. I tried this so many times I think there can be no mistake. Boiling any water for drinking purposes answers a twofold purpose—it effectually kills organic matter or vegetable life in the water, and changes or precipitates, at least to some extent, what chemicals there are, in solution. Still further, a patient suffering with summer complaint, who can not drink cold water or water at ordinary temperatures, can drink water, as hot as the mouth can bear, as a general rule, without any distressing symptoms.

cially the father of the Roots then present. I heeded not their protests, but climbed down to the water's edge, tossing my shoes and stockings back at their feet to keep as mementoes if I got washed away. The folks on shore made such a fuss, however, I was really obliged to wade out of the water (which, by the way, was hardly knee-deep) and come ashore and forego my delicious pastime; but I felt as I can imagine a young duck does that has been hatched under a hen, and I told them I was coming some other time when they were not along, so I could have the fun of wading in Niagara Falls rapids to my heart's content.

John and I paid half a dollar for a water-proof suit to go down under the falls; but the girls thought they would stay on top. I did not feel satisfied to go out under the falls as far as the walk and railing extended. The guide said I could climb out on the rocks a little further if I wanted to. They guaranteed their water-proof clothing to keep us perfectly dry, so I walked out to the place where I could get right under a part of the fall. The wind swayed the broken-up spray one way and the other, so occasionally it would come all over me like a deluge. Once in a while the torrent was so great as to make me gasp for breath; but through it all there was a most delicious sensation (for it was a rather hot day) that for a time seemed strangely familiar. Finally I recalled that wheel-ride in the dark, when I passed through a foggy swamp where the air was so laden with vapor that it gave a delicious sensation like drinking water in filling the lungs with the damp water-laden air. Now, I have never heard this mentioned before; but I believe it is not only delicious but wholesome, during hot dusty weather, to wash out the lungs by breathing air so heavily laden with watery spray as to make you pant a little at times for breath. After I had enjoyed this until Mr. Calvert reminded me we would have to hurry back to the carriage, which was hired for only a limited time, I decided I could not go back without getting a better chance to kneel at the very foot of the great cataract. I saw a place where I could climb down through the rocks, and get clear into that boiling, hissing foam of mighty roaring waters. One little spot there seemed to be, right at the very foot of it all, where I could sit down and let the surging billows rush and roar up to my very feet. I got almost down there—in fact, one minute more and I should have been in the coveted retreat. Just as I was ready to slide down, however, there was a change in the program, and great waves of snowy, misty spray covered the spot entirely, and rolled up to my very feet. I am sure there would have been no danger of being washed into the boiling caldron; but the girls would certainly have had more cause for alarm had they been around just then. Now, why don't they have some iron rods for inquisitive Yankees to hang on to? or why don't they provide even a loose robe, so that people may safely dip into these delicious and entrancing waters, if they choose to? Why, to me the greatest charm of Niagara is to get right into the foam and suds, and be really a part of it.

I hate to find fault; but there is quite a little bit of humbug about the way the ticket-vendors advertise these places. The "light water-proof clothing" they tell about is a pretty good load for a man to carry, let alone advising women to go down there. And the "intelligent guide" who takes you around, and "explains" every thing, is a stupid, dirty fellow, smoking a pipe. He never volunteers a word unless you ask him a question; and then he seems to begrudge the time it takes to keep the

pipe out of his mouth while he answers in monosyllables. (This, too, on the *Canada* side.)

The great project of making Niagara Falls a water-power to move the wheels of the world is already in operation. Away up above the rapids, where I disturbed the children by wading in, a shaft has been sunk, hundreds of feet deep, so as to take the water from the *highest* point in Niagara River. A tunnel that has its opening near Suspension Bridge runs back into the rock about a mile, connecting with this shaft, utilizing the force of this water from its highest point, and letting it out at its very *lowest* point. This tremendous power is utilized by means of the latest and most improved turbine water-wheels; and these wheels move dynamos, and the great volume of electricity thus produced is carried by wire cables miles and miles, furnishing power wherever needed, and in quantity almost unlimited; and one of the beautiful things that this electric current is just now doing is propelling the cars of an electric railway down the gorge from the suspension bridge, through Whirlpool Rapids, Devil's Hole, and ever so many other points of interest, clear to Lewiston, on Lake Ontario. Although our tickets from Cleveland to Toronto covered this part of the trip, we cheerfully paid the small sum of 25 cents to ride down in the new street-cars on the Gorge Railway. Let me briefly explain: Lake Superior is considerably higher than Lake Huron, into which it empties; Lake Huron, in turn, is higher than Lake Erie, just below, and Lake Erie is several hundred feet higher than Lake Ontario, the fall in one place between the two lakes being 160 feet sheer perpendicular, constituting what is known as Niagara Falls.

We took this gorge railway and descended by the electric elevator 230 feet down the cliff. But even when we had reached the bottom we found Niagara River just roaring and raring as it pitches headlong still further down into this rocky gorge with the cliffs more than 200 feet high on each side. It goes down hill in this headlong way for all of a mile, and this makes the wonderful gorge. The new railway, just completed, is cut in the side of the rock at times almost down to the water's edge. Mr. Calvert asked one of the managers how long that project had been in operation. The reply gave me a quick start of pain. He said:

"We made our first trip just two weeks ago last Sunday."

I have not the full particulars; but as soon as he spoke I remembered hearing of a terrible accident, resulting in the loss of life, about the time they opened this new railway. God has given us this wonderful new force, electricity. He has given us the new means of rapid travel by these beautiful and unique electric railways. Is it really true that the United States of America is getting into a fashion of celebrating each new gift from the great God above by trampling upon and desecrating his holy Sabbath? They start new street-railways on Sunday; and when our American boys and girls want to demonstrate what may be done with this other new gift right from the great Father above, the modern wheel, they pick out God's holy day on which to demonstrate that they can ride a hundred miles between sunrise and sunset. This country professes to be a Christian nation; yet right over the line, in the city of Toronto, a great city of about 200,000 inhabitants, not an electric car or any other kind of street-car moves a wheel on Sunday. I asked some of the people how they managed to go to church without the aid of street-cars. You know folks in the large cities here in the States claim that the cars are an absolute

necessity for the people to go to church. Well, one of the Toronto friends replied something as follows:

"Mr. Root, if you will consent to remain over Sunday with us I think I can show you that a greater proportion of the people of Toronto attend church regularly than in almost any other city you can find of its size in the world."

While in Buffalo I unexpectedly ran across our big good-natured friend Dr. Mason; and he was, as he always has been, a great part of the life of our convention. J. B. Hall, of Woodstock, Ontario, kept up his reputation, not only as a successful thorough-going bee-keeper, but he has not forgotten his comicalities and dry jokes. He said that, the next time I wanted a milder climate than that of Ohio to spend the winter in, I should come up and live in Canada. He said they would send me back with plump and rosy cheeks, something after the fashion of my son-in-law, Mr. Calvert, and the rest of them who were brought up in Canada.* Father Langstroth, with his accomplished daughter, Mrs. Cowan, was present, I believe, during all the sessions. T. G. Newman; W. F. Clarke; R. H. McKnight; Hutchinson, of the *Review*; York, of the *American Bee Journal*; Holtermann, of the *Canadian Bee Journal*, and Frank Benton, from Washington, were all present; and the greater part of our deliberations were characterized by brotherly feeling and brotherly bearing. Once or twice, when I was not present, somebody said there was a little jangle. Matters that did not seem to settle themselves quickly were very soon referred to a committee, so that comparatively little time was wasted in unimportant matters. Father Langstroth gave us a history of the difficulties attending the landing of the first Italian bees on American shores, about the year 1859. Mr. Parsons, the celebrated florist and rose-grower, made about the first successful shipment. But he was no bee-keeper; and after he got his bees here safe and sound he was so very careful and kind (?) to them that he first put them into a greenhouse. After the greater part of them had buzzed their lives out by bumping against the glass he put them outdoors in an antiquated bee-shed; but somebody told him they would surely go off and get lost unless he shut them in. So he covered the bee-shed with mosquito-netting. And this was a time when cherry-trees, apples, and pears were all in full bloom, and the common black bees just reveling in the blossoms. The poor Italians were kept inside by the cruel netting. After the six colonies were almost used up he sent for his old friend L. L. Langstroth to come and try his hand at saving them. They had been feeding them honey inside of the netting. The poor bees were daubed up, discouraged, and many of them dead; and, after doing his very best, friend Langstroth saved just a single queen. Somebody from California wanted the Italians so bad that he actually offered \$500 in gold for the single surviving queen; but Parsons

* In his talk about wintering bees in the cellar (for I believe cellar wintering seems to be best during the long severe Canadian winters) he spoke of the contented hum that should tell the bee-keeper when every thing is just right; and even when he was talking—at least so it seemed to me—a cheerful, gentle hum began to diffuse itself throughout the whole large room in which the convention was held. I thought at first it must be an accident; then I stared at our friend, and wondered if it were possible that he was a ventriloquist as well as humorist. There was no mistake about it. The well-known buzz that seemed to be here, there, and everywhere, instead of emanating from any particular point, must have been the result of a ventriloquial effort on the part of our comical and irresistibly quaint veteran, J. B. Hall.

would not let her go. Then there was a craze for more importations, and others finally succeeded. It was not very long after this time that I got the bee-fever, or the Italian-bee fever, as you may remember from the introductory pages of the A B C book, and I paid \$20.00 for my first Italian queen, and it was a good investment.

T. G. Newman presented the matter of the Bee-keepers' Union. I will explain to our readers who are not familiar with this organization, that a certain number of bee-keepers throughout the United States and Canada club together and pay \$1.00 a year for the purpose of keeping a reserve fund for employing legal talent when any individual or town, or any locality, takes it into its head that bee-keepers have not the right to live and do business. Of late years the Union has succeeded in settling most cases of litigation by simply showing its record in the past, and letting the world know that it has a reserve fund that may be used to employ the best legal talent to defend our rights. Of course, this money is expended only for the protection of its members.

For years back, most readers of the bee-journals have enjoyed the writings and the instruction given us regularly by our good friend Doolittle. In fact, his is almost a household name in every family where a bee-journal is taken; but I never knew until now that friend Doolittle was an orator as well as a writer. And I want to whisper to the friends in his vicinity, that, in case the minister should be absent on a vacation or otherwise, friend Doolittle is abundantly able to give them an excellent sermon, fit for Sunday or any other day. I want to repeat just one little story he gave us, because it contains an excellent moral:

When Henry Clay got to be something of a public man, on a certain time it became very desirable that he should have the friendly services of one who had in days gone by been an old schoolmate. This friend, however, had been put out by something not according to his ideas of justice and right. He flatly refused to give Mr. Clay any aid or encouragement. The great orator plead his case nobly. He reminded his friend of their boyhood days—of the time when they had been almost inseparable, winter and summer, as they studied and played together. Said he, "James, do you remember that old flint-lock musket our fathers used to let us have to hunt with?" James nodded. "Do you remember how many times it brought down the game, and did wonders for such ancient artillery?"

His friend's face softened a little at the memory of bygone days, and he nodded again.

"Well, this old flint-lock musket failed us once or twice."

By this time James had relented enough to supply an incident or two in the narrative. "Yes," said he, "I do remember one critical moment when I stood face to face with a bear; and, although it had not failed me once for a very long time, the obstinate thing at just this critical point, when it was almost a matter of life or death, refused to go off."

"Well, James, did you throw the musket away and declare you would never have any thing more to do with it?"

"Why, no, I remembered how faithful it had been previously; and as there was not really any thing very much better to choose from away back in those days, I 'picked the flint' and tried it again."

"James, you have just said you would never forgive me for that one foolish act away back years ago. You surely do not mean to say that you are going to throw me over, and treat me

with less consideration than you would an old flint-lock musket, do you?"

James threw his arms around his old comrade's neck, and in his turn begged forgiveness for being so stubborn and obstinate, and they were friends ever afterward. Dear brother bee-keeper, does this story come home to you? Is there one in our ranks who has done some foolish thing? and have you been more foolish still in declaring in your heart, even if you have not said it in words, "No, I will never forgive him nor forget the injury?"



Praise ye the Lord; for it is good to sing praises unto our God.—PSALM 147:1.

One strong inducement to go to Toronto was an exceedingly kind letter from Grainger Brothers, florists and market-gardeners, out in the suburbs of Toronto. It rained the evening we came into the city; therefore next morning at daylight it was a splendid time to look over flowers, fruits, and vegetables. As soon as I could manage to get my rations of beefsteak at the hotel I was off on the beautiful new street-cars that go everywhere in Toronto. How customs do vary in different cities! In Toronto you do not put your fare in a stationary box, neither do you hand any money to a conductor. The conductors are all prepared to give you six tickets for 25 cts. Each ticket will take you anywhere in the city. Just say where you want to go, and the needful transfers will be cheerfully furnished. The conductor never takes your ticket, however. He simply presents you with a machine looking something like a coffee-pot, and you are expected to drop your ticket down into the glass nozzle. If you haven't any ticket, of course he sells you one or more. At the close of his day's work I suppose he hands over the unsold tickets and the money, and they should just tally. The coffee-pot is also handed in, and the tickets counted. When I looked inquiringly at said coffee-pot, the young man who carried it explained it very cheerfully. You see, they are accustomed to receiving visitors.

Friend Grainger was away, out in the gardens, among the wet grass and dahlias, and other flowers decked with dewdrops. His obliging and efficient assistant very courteously took me over to the place, and showed me the sights on the way. Grainger Brothers have several ranges of greenhouses that made me think I was in Pleasant Hill, Mo.; but they were not quite as extensive. Off through a pasture-lot we went, and climbed over the fence. Here was an apple-orchard with the trees bending with the most beautiful fruit, perhaps, I ever saw; and underneath the apple-trees, occupying almost every foot of ground, were great gorgeous dahlias—some of them as big as saucers (or a little smaller). This, you see, is gardening again under the shade of the trees, such as I described in Florida. On every hand I saw something that came from the Home of the Honey-bees. They put the Ignotum tomato at the head of all others, with the exception that it rots rather more than some others—the Atlantic Prize, for instance. These beautiful dahlias are shipped away down to the States, and among their customers are the seedsmen Dreer, Pitcher & Manda, and others familiar to greenhouse-men. But, didn't we talk tomatoes, sweet corn, spin-

ach, and every thing that grows in the garden! Just now, however, garden-stuff is very low in and around Toronto. Nice potatoes are retailing at 25 cts. a bushel; tomatoes about the same. Green corn has been hawked about the streets for 4 cts. per dozen; string beans, 10 cts. a peck; cucumber pickles, 15 cts. per 100. The recent rains, you see, have sent every thing forward all at once. Friend Grainger admitted it hardly paid for picking; but somehow it seemed easier for the men and horses to go through the motions than to stand still and give up. Besides, if they give their patrons great bargains just now when every thing is so plentiful, they will hold the trade, and may expect said patrons to turn around and give them a lift when prices are higher again.

The Graingers have a way of fixing their hot-water pipes that may not be new, but it was new to me. They use four-inch pipes with bell-shaped coupling, and the joints are made with Portland cement and water—nothing else. They told me, however, that, to get the best results, put the pipe together, put in your cement, set every thing as you want it, leaving a little opening on the upper side of each joint. After the cement sets hard, and you are ready to put in the water, then cement up these openings, or vent-holes, the very last thing. When put up in this way he says he has never had a leak. The hot water never disturbs the Portland-cement joints.

After we had looked around the home garden and admired the great masses of bloom, we took the horse and buggy and went further into the suburbs. Most of the soil round about Toronto is just the thing for market-gardening—a sandy loam—and a great deal of it quite rolling. The rolling land is just right for fruit. In one twenty-acre lot we saw apple-trees with the limbs just breaking down with the most beautiful, smooth, clean, handsome fruit. Between the trees was a rank, thrifty crop of sweet corn; and between the rows of sweet corn were great quantities of Hubbard squashes—three crops on the same ground. But I suppose the secret of it was the great quantities of manure drawn from the big city. This twenty-acre piece contained a great variety of crops of all kinds; but the owner had not yet learned the importance of having the stuff in long rows. He had square beds of one thing and then square beds of something else.

Oh! I must not forget to mention the beautiful Prizetaker onions. Some of them looked like little cabbage-heads. They were piled up in front of the groceries all over Toronto. Friend Grainger tells me they are transplanted onions, and are now produced all over Canada. He said he believed he started the thing first, and he got it from the Home of the Honey-bees.

Before getting around to the bee-keepers' convention I was treated to a glimpse of the trial grounds of Steele Brothers, of Toronto. There we saw all of the late and much-talked-of tomatoes, each one trained on a handsome wooden trellis, all in full bearing, the first of the tomatoes getting dead ripe, and not a tomato yet picked. As I told you, the Ignatum holds its own in Canada about as well as any other, only that it roots more in dry seasons than some others. Livingston's Buckeye State may, perhaps, be preferred by some; but the Fordhook Early, from Atlee Burpee. I think showed the best for an extra-early tomato. Oh what a beautiful place—that was to test gardening! The only trouble—if it could be called a trouble—was, that the ground was so rich that almost every new vegetable showed to advantage. Why, their trial crop of cabbages was the finest cabbage-field I ever saw in my

life anywhere. I should hate to be obliged to load some single heads, leaves and all, into the market-garden wagon. But then, you see I am on beefsteak diet just now, and that may have a bearing on the case.

On our way home my companion asked me how much I remembered of him. I replied that we had corresponded more or less for many years about greenhouses and mushrooms, transplanting onions, etc. "But," said he, "I don't believe you know even now just who it is who is riding by your side. Do you remember that, years ago, a boy wrote you to the effect that he was working for a man who was a confirmed skeptic; and, notwithstanding what GLEANINGS said, it seemed to him, this boy, that Christians were not as honest and upright in deal as people who make no profession, or skeptics, if you choose."

I did recollect some such letter away back in the past. He went on:

"Just about the time my parents were lamenting that I was straying away from the faith, I got hold of a single number of GLEANINGS, and it gave me a glimpse of the real worth and value of true religion as a force or motive power in the business world I had never got hold of before. To be brief, I dropped my unbelieving employer, and, through the influence of the Home Papers, I chose Jesus Christ, and commenced the Christian life. Along with my Christian sentiments I took to gardening and greenhouses. You have seen the outcome, or, at least, some of it. At first my wife did not take much interest in GLEANINGS, thinking it was gardening, bees, and such things, out of a woman's line. One evening, however, I picked out an old number and asked her to read a little of A. I. Root's talks. She asked for the next and the next, and I could hardly get her to go to bed that night; and in a very short time she had read the Home Papers up to date; and now you know why I was urgent in my invitation to have you make one of our little household. In the evening I was pretty tired and asked to go to bed early.

Oh! I almost forgot to tell you there is a baby in that household. Of all the beautiful flowers that the greenhouse and all outdoors combined can show, there is none brighter or prettier or sweeter than that baby; yes, and I might include as well another one that is a little too old to be called "the baby" just now.

After bidding them all good-night, baby included, I went up to my room. I wonder if any body else knows what dainty, pretty, tasty sleeping-rooms there are in "our neighbors'" homes all over our land. In fact, I should not know it, if I did not get around among my neighbors now and then. On the dainty little stand with its pretty spread I found the latest thing in the way of a handy Bible. Tired as I was, I selected one or two of my favorite passages. By the way, for weeks back every now and then there has been welling up from my heart the words.

Praise God, from whom all blessings flow; and as the sweet strains of music came up from the room below, I joined my prayer with their praise. Friend Grainger loves music as well as flowers, fruits, and vegetables. He is a leader, or something of that sort, of their Sunday-school choir. The young people of the neighborhood had gathered in with violins and violoncello; the sweet voices accompanied the piano in practicing for the next Sunday morning service, for this was the regular night. I laid my tired frame in the soft sweet bed, and, with the blinds thrown wide open, until the pure fresh air came right across my face, I lost consciousness with praises to God upon my lips.

The greenhouses and the flowers, and that little home, rejoiced my heart; but, oh! a thousand times more did I rejoice to see young boys and girls growing in wisdom's ways, and stepping heavenward—yes, the childish voices to be heard above the music, practicing hymns of praise, were to me the sweetest music ear ever heard.

After dinner, while standing on the hotel steps of the Palmer House, a man approached me and introduced himself as James Storer, of Lindsey, Ontario, a locomotive engineer. He said he had begged leave of absence for just a few hours in order that he might meet A. I. Root, and he came pretty near not finding him. It was not bees he wanted to talk about, although he had been a bee-keeper years before. Through the bees he got hold of GLEANINGS; and through GLEANINGS, nearly fifteen years ago, he was induced to give up the use of tobacco. Before he dropped it, however, one of his four boys had acquired the habit. That boy uses it still. The three other boys do not, and could not be hired to. Said friend Storer, "Mr. Root, if you were to give me \$500 in gold to-day, and furnish me, free of charge, the best tobacco that the world can produce, all the days of my life, I would not think of touching it; and I came here to thank you in behalf of my boys, in behalf of my wife, and in behalf of all my children—in behalf of Christ Jesus, our common Savior, for the good you did in winning me from that bad habit. Your Tobacco Column presented it in a way that I could not take offense. You reminded me of my boys, who would surely follow their father's example; and I said that, God helping me, I would not be a slave any longer. To-day I am a free man, and am rejoicing in better health; I am rejoicing in cleaner habits; I am rejoicing in a clear conscience. Keep up the Tobacco Column, and never let it drop, or be crowded out." Of course, the above are not his exact words, but I think they are not very far from them.



ALFALFA IN NEW YORK.

On the steamer on Lake Ontario I formed the acquaintance of E. A. Stratton, of Horseheads, N. Y. He told me he was a market-gardener. In May, a man to whom he had rented one acre went back on his contract, and the ground lay idle. He plowed it up and sowed half a bushel of alfalfa seed. By the middle of August it was two feet high, and he cut it and got a tremendous crop of feed. It was about a third in bloom when cut. The day he left home, Sept. 5, it had grown to a foot in height since cutting. Of course, this stand will winter safely—at least, I should suppose it would; and if this can be done in Chemung Co., N. Y., why can't it be done in other places? Friend S. said they were having a heavy yield of buckwheat honey. He had already secured 50 lbs. to the colony, of comb honey, and it was selling readily at 10 cts. per lb.

THE GAULT RASPBERRY.

Mr. Root:—In response to your request of Aug. 1, I will say that I have good prospects of getting 50 plants from the single Gault raspberry sent me this spring. There are now over 40 canes ready to layer, and they are are still

growing more. It has not attempted to blossom so far this season. I am much pleased with the way it grows; and as soon as I test its fruiting here I will plant largely if satisfactory. Unionville, Mo., Sept. 2. E. F. QUIGLEY.

The Gault raspberry has, from the one plant I got of you, given 30 nice plants, now growing. They are all the way from blossom-buds to ripe berries, loaded. I laid down the canes and covered three and four places with dirt like this: —o—o—o—o—and I raised good plants, by what you may call "layering." The consequence was, the layering plants threw out a shoot near, or about the surface of the ground, and these shoots gave what is called the early or first crop; then afterward they threw out good strong shoots from beneath the ground. By this time you can hardly tell which were the tip or layer plants. JOHN SLAUBAUGH.

Eglen, W. Va., Aug. 30.

ENEMIES OF THE CLOVER.

Mr. Root:—Perhaps I can give you the information desired by C. C. Welsh, of Fostoria, O., concerning the clover midge. The clover midge is a minute fly, or midge, which destroys the corolla of the red clover, *Trifolium pratense*, the larvæ of the midge eating out the heads until they have a blasted look, destroying the organs of reproduction, and sometimes causing whole fields to be barren. The heads as they ripen sometimes appear as though they had been sheared, or the corolla plucked out. The above is enough to make any one entirely familiar with the work of the midge, which, when full grown, is not $\frac{1}{16}$ inch in length.

Now concerning the worm mentioned by Mr. Welsh. It is undoubtedly the *Phytonomus punctatus*, an insect that attacks young clover-fields in this State in immense numbers, and, were it not for the fact that the insect itself is attacked by a fungus here, it would in a very short time exterminate the trifoliate family from our State, as, early in the spring, the sod seems packed with them. The symptoms of attack by the fungus will be known by seeing the worms suspended from grass-blades, where they soon die and dry up. This symptom should cause joy wherever seen, as it is a sign of no further damage.

Buckwheat honey is rushing at present.

Baptisttown, N. J., Aug. 26. W. W. CASE.

BUCKWHEAT FOR PIGS.

Mr. Root:—Can you give me the results of feeding hogs on buckwheat? Is there any trouble in pasturing hogs on fields of it? I have an idea that we can raise pork cheaper on buckwheat than on any thing else, if it is healthful. The only fear I have is that it may give hogs a cough. I have some fine lots that I will turn my hogs into soon, if I learn nothing unfavorable. Last fall I had a small lot, and let my pigs go in it. The results were wonderful, although the animals coughed a good deal, but no further trouble. I hope to hear from you with any information you can give, so I will give the results of this season as soon as over. I counted 290 grains of buckwheat on one stalk, and still fresh blooms coming. Of course, it was a select stalk, but only an average of the best. Goldston, N. C., Aug. 16. J. M. STINSON.

You have got us here rather out of our beat. I do not know that I ever before heard of buckwheat for pigs, but doubtless our readers can give you points in the matter. I can hardly believe that the buckwheat, as they ate it in the fields, had any thing to do with the cough. If

it should transpire that buckwheat is a cheap pork-producing plant, it would be another thing in its favor. Years ago I wrote about keeping poultry without any care or attention by sowing buckwheat for them, say every week during the season. It was because our hens did so well when we had a field of buckwheat close to the poultry-houses, and because some of the biddies went out into the field, stole nests, hatched great broods of chickens, and reared them, not only without any care and attention, but without any knowledge on the part of the owner, until the mother paraded a great brood, old enough to be past the danger-line. Another thing that pleases me is to know that buckwheat is a success as far south as North Carolina. I thought it was rather a cold-weather plant.

ABUNDANCE PLUMS.

Mr. Root:—Your mention of Abundance plums, page 607, will no doubt cause many of your readers to plant them, which is all right; but I wish to add a word of caution. Many of the Japanese plums bloom too early, and get frosted. Then many nurserymen bud them on peach-stocks, which is a mistake that the planter will have to bear. All plums should be budded on plum-stocks. The following are the best of the Japan plums: Abundance, Burbank, Red June, Chabot, Orient, and possibly a few more. They are a beautiful tree, and fruit brings a good price in the market. In planting for market I chose Abundance and Burbank, and will add Red June and Orient at my next planting. I will favor the readers of GLEANINGS with my success with these plums in North Missouri as soon as they commence bearing. Being interested in horticulture, I should like to know how your Rocky Mountain cherries have fruited.

FREEMAN POTATOES.

I planted a barrel of Freeman potatoes, and am well pleased with both the yield and quality, though they are not quite so early as expected. I followed the Terry plan of planting and cultivating. **E. F. QUIGLEY.**

Unionville, Mo., Aug. 6.

The trouble here, friend Q., with the Abundance plum, is as you mention—they are very apt to be cut off by late frosts. A neighbor of ours has an orchard of toward 100 trees, and last spring they were loaded with green plums; but the frost took every one of them. The frost also took every one of our Rocky Mountain cherries; but our experiment station secured some fruit, and they tell me they are more like an enlarged wild cherry or choke-cherry than the tame cherries that grow on our trees. I fear that the nurserymen have overstated in regard to the quality of the fruit.

HUMBUGS AND SWINDLES.

A subscriber sends us a part of a periodical that calls itself the *United States Health Reports*. On this clipping there is a big boom of the California cold process of preserving cold fruits, signed by Mrs. M. A. Curter, Englewood, Ill. She tells how a poor woman can make one or two hundred dollars around home in a few days by selling the secret for a dollar. Anybody who wants to sell you a secret or a recipe for doing any thing for a dollar or any other sum, had better be turned out of doors to start with; do not parley or argue. Get him clear off your premises as soon as possible, for all such things are humbugs and swindles. This poor woman says she will send samples of the fruit,

with full directions, for 18 two-cent stamps. I do not know whether she sends any thing for the stamps when she gets them, or not; but the thing is an old humbug and an old swindle. On the other side of the paper we read:

"Indorsement of the United States Health Reports, July 19, 1895."

Then they go on to tell that the United States has indorsed the Perfection Manufacturing Co.'s dish-washer. The washer may be a very good thing—we don't know; but the puff of the thing is an out-and-out swindle. It is a little significant, but not at all strange, that, on the same little clipping, we find a denunciation of preachers in general. One would think this United States Health Report had a special dislike or dread of the very word "preacher," and well they may have. We have looked in our commercial reports for the standing of the Perfection Manufacturing Co., Englewood, Ill., but the quotation is blank, blank. Look out for all such advertisements.

Books for Bee-Keepers and others.

Any of these books on which postage is not given will be forwarded by mail, postpaid, on receipt of price.

In buying books, as every thing else, we are liable to disappointment if we make a purchase without seeing the article. Admitting that the bookseller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. I very much desire that those who favor me with their patronage shall not be disappointed, and therefore I am going to try to prevent it by mentioning all the faults, so far as I can, that the purchaser may know what he is getting. In the following list, books that I approve I have marked with a *; those I especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines, ‡; foreign, §. The bee-books are all good.

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice, that you can judge of the size of the books very well by the amount required for postage on each.

- | | | |
|---|--|------|
| 8 | Bible, good print, neatly bound..... | 20 |
| 10 | Bunyan's Pilgrim's Progress**..... | 30 |
| 10 | Illustrated Pilgrim's Progress**..... | 75 |
| This is a large book of 425 pages and 175 illustrations, and would usually be called a \$2.00 book. A splendid book to present to children. Sold in gilt edge for 25c more. | | |
| 6 | First Steps for Little Feet. By the author of the Story of the Bible. A better book for young children can not be found in the whole round of literature, and at the same time there can hardly be found a more attractive book. Beautifully bound, and fully illustrated. Price 50 c. Two copies will be sold for 75 cents. Postage six cents each. | |
| 5 | Harmony of the Gospels..... | 35 |
| 3 | John Ploughman's Talks and Pictures, by Rev. C. H. Spurgeon*..... | 10 |
| 1 | Gospel Hymns, consolidated Nos. 1, 2, 3, and 4, words only, cloth, 10 c; paper..... | 05 |
| 2 | Same, board covers..... | 20 |
| 5 | Same, words and music, small type, board covers..... | 45 |
| 10 | Same, words and music, board covers..... | 75 |
| 3 | New Testament in pretty flexible covers..... | 05 |
| 5 | New Testament, new version, paper covers..... | 10 |
| 5 | Robinson Crusoe, paper cover..... | 10 |
| 4 | Stepping Heavenward**..... | 18 |
| 15 | Story of the Bible**..... | 1 00 |
| A large book of 700 pages, and 274 illustrations. Will be read by almost every child. | | |
| 5 | The Christian's Secret of a Happy Life**.... | 25 |
| 8 | Same in cloth binding..... | 50 |
| 5 | "The Life of Trust," by Geo. Muller**..... | 1 25 |
| 1 | Ten Nights in a Bar-Room, T. S. Arthur*..... | 05 |
| 5 | Tobacco Manual**..... | 45 |
| This is a nice book that will be sure to be read, if left around where the boys get hold of it, and any boy that reads it will be pretty safe from the tobacco habit. | | |

BOOKS ESPECIALLY FOR BEE-KEEPERS.

- | Postage | | (Price without postage.) |
|-----------------------------------|--|--------------------------|
| 15 | A B C of Bee Culture. Cloth..... | 1 10 |
| 5 | A Year Among the Bees, by C. C. Miller... 45 | |
| | Advanced Bee Culture, by W. Z. Hutchinson 50 | |
| 3 | Amateur Bee-keeper, by J. W. Rouse..... 22 | |
| 14 | Bees and Bee-keeping, by Frank Cheshire, England, Vol. I &..... 2 36 | |
| 21 | Same, Vol. II &..... 2 79 | |
| or, \$5.25 for the two, postpaid. | | |
| 10 | Bees and Honey, by T. G. Newman..... 90 | |

10	Cook's New Manual. Cloth.....	1 15
5	Doolittle on Queen-Rearing.....	95
2	Dzierzon Theory.....	10
3	Foul Brood; Its Natural History and Rational Treatment.....	22
1	Honey as Food and Medicine.....	05
15	Langstroth Revised by Ch. Dadant & Son..	1 25
10	Quinby's New Bee-Keeping.....	1 40
4	Thirty Years Among the Bees, by H. Alley	50
	Success in Bee Culture, by James Heddon	46
	Handling Bees, by Langstroth. Revised by Dadant.....	08
	Bee-keeping for Profit, by Dr. G. L. Tinker	25
5	The Honey Bee, by Thos. William Cowan..	95
	British Bee-Keeper's Guide Book, by Thos. William Cowan, England.....	40
3	Merrybanks and His Neighbor, by A.I. Root	15
4	Winter Problem in Bee-keeping, by Pierce	46

MISCELLANEOUS HAND-BOOKS.

5	An Egg-Farm, Stoddard**.....	45
	Amateur Photographer's Hand-book**.....	70
5	A B C of Carp Culture, by Geo. Finley.....	35
5	A B C of Strawberry Culture**By T. B. Terry	35

Probably the leading book of the world on strawberries.

	Barn Plans and Out-Buildings*.....	1 50
	Canary Birds. Paper.....	50

2	Celery for Profit, by T. Greiner**.....	25
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The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once, without any assistance except from the book.

8	Domestic Economy, by I. H. Mayer, M. D.**	60
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This book ought to save at least the money it costs, each year in every household. It was written by a doctor, and one who has made the matter of domestic economy a life-study. The regular price of the book is \$1.00; but by taking a large lot of them we are enabled to make the price only 60 cts.

	Draining for Profit and Health, Warring.....	1 50
10	Fuller's Grape Culture**.....	1 40

	Farming For Boys*.....	75
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This is one of Joseph Harris' happiest productions, and it seems to me that it ought to make farm-life fascinating to any boy who has any sort of taste for gardening.

7	Farm, Gardening, and Seed-Growing**.....	90
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This is by Francis Brill, the veteran seed-grower, and is the only book on gardening that I am aware of that tells how market-gardeners and seed-growers raise and harvest their own seeds. It has 166 pages.

12	Gardening for Pleasure, Henderson*.....	1 85
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While "Gardening for Profit" is written with a view of making gardening PAY, it touches a good deal on the pleasure part; and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds without the special point of view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 404 pages and 203 illustrations.

12	Gardening for Profit.....	1 85
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The latest revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward making market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts.

	Gardening for Young and Old, Harris**....	1 25
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This is Joseph Harris' best and happiest effort. Although it goes over the same ground, occupied by Peter Henderson, it particularly emphasizes the thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

10	Garden and Farm Topics, Henderson**.....	75
	Gray's School and Field Book of Botany....	1 80

5	Gregory on Cabbages; paper*.....	25
5	Gregory on Squashes; paper*.....	25
5	Gregory on Onions; paper*.....	25

The above three books, by our friend Gregory, are all valuable. The book on cabbages especially is good, teaching you almost anybody, whether they raise squashes or not, the trick at the very foundation of success in almost any kind of business.

10	Greenhouse Construction**.....	1 40
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This book, by Prof. Taft, is just out, and is as full and complete in regard to the BUILDING of all glass structures as is the best book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

15	How to Make the Garden Pay.**.....	1 35
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By T. Greiner. This is a new book, just out, and it gives the most explicit and full directions for gardening under glass of any book in the world. Those who are interested in hot-beds, cold-frames, cold-greenhouses, hot-houses or glass structures of any kind for the growth of plants, can not afford to be without the book.

	Handbook for Lumbermen.....	10
10	Household Conveniences.....	1 40

2	How to Propagate and Grow Fruit, Green*	15
2	Injurious Insects, Cook.....	25

10	Irrigation for the Farm, Garden, and Orchard, Stewart**.....	1 40
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This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Being water from springs, brooks, or windmills, to take the place of rain, during our great droughts, is the great problem before us at the present day. The book has 274 pages and 142 cuts.

5	Manures; How to Make and How to Use them; in paper covers.....	45
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6	The same in cloth covers.....	65
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Covering the whole matter, and discussing every thing to be found on the farm, refuse from factories, mineral fertilizers from mines, etc. It is a complete summing-up of the whole matter. It is written by F. W. Semper.

7	Market-gardening and Farm Notes, by Burnett Landreth.....	90
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The Landreth's are the pioneer seedsmen of America; and the book is worth fully as much as we might expect it to be. I think I received hints from it worth the price, before it had been in my hands fifteen minutes. It is exceedingly practical, and tells what has been done and what is BEING done, more than it discourses on theory.

3	Maple Sugar and the Sugar-bush*.....	35
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By Prof. A. J. Cook. This was written in the spring of 1887 at my request. As the author has, perhaps, one of the finest sugar-camps in the United States, as well as being an enthusiastic lover of all farm industries, he is better fitted, perhaps, to handle the subject than any other man. The book is written in French, Cuckoo-style, combining wholesome moral lessons with the latest and best method of managing to get the finest syrup and maple sugar, with the least possible expenditure of cash and labor. Everybody who makes sugar or molasses wants the sugar-book. It has 42 pages and 35 cuts.

1	Our Farming, by T. B. Terry**.....	\$2.00
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In which he tells "how we have made a run-down farm bring both profit and pleasure."

3	Onions for Profit**.....	45
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Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with the enthusiasm and energy of the author. I estimate its author, T. Greiner. Even if one is not particularly interested in the business, almost any person who picks up Greiner's books will like to read them through.

1	Poultry for Pleasure and Profit**.....	10
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11	Practical Floriculture, Henderson*.....	1 35
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10	Profits in Poultry*.....	90
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2	Practical Turkey-raising.....	10
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By Fanny Field. This is a 25-cent book which we offer for 10 cts.; postage, 2 cts.

4	Peabody's Webster's Dictionary.....	10
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2	Rats; How to Rid Farms and Buildings of them, as well as other Pests of like Character.....	15
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This little book ought to be worth dollars instead of the few cents it costs to any one who has ever been troubled with these pests, and who has not! It is written in such a happy vein that every member of the family will read it clear through, just about as soon as they get hold of it. It contains a complete summing-up of the best information the world can furnish.

1	Silk and the Silkworm.....	10
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10	Small-Fruit Culture, Fuller.....	1 40
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10	Success in Market-Gardening*.....	90
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This is a new book by a real, live, enterprising and successful market-gardener who lives in Arlington, a suburb of Boston, Mass. Friend Rawson has been one of the foremost to make irrigation a practical success, and he now irrigates his grounds by means of a windmill and steam-engine whenever a drought threatens to injure the crops. The book has 208 pages, and is nicely illustrated with 110 engravings.

	Ten Acres Enough.....	1 00
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	Talks on Manures*.....	1 75
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This book, by Joseph Harris is, perhaps, the most comprehensive one we have on the subject, and the whole matter is considered by an able writer. It contains 366 pages.

2	The Carpenter's Steel Square and its Uses.....	15
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10	The New Agriculture; or, the Waters Led Captive.....	75
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2	Treatise on the Horse and his Diseases.....	10
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5	Tile Drainage, by W. I. Chamberlain.....	35
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Fully illustrated, containing every thing of importance clear up to the present date.

5	Tomato Culture.....	35
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In three parts. Part first, by J. W. Day, of Crystal Springs, Miss., treats of tomato culture in the South, with some remarks by A. I. Root, adapting it to the North. Part second—By D. Cunningham, of Connecticut, O., treats of tomato culture especially for canning-factories. Part third—By A. I. Root, treats of plant-growing for market, and high-pressure gardening in general. This little book is interesting because it is one of the first rural books to come from our friends in the South.

3	Winter Care of Horses and Cattle.....	35
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This is friend Terry's second book in regard to farm matters; but it is in no wise connected with his other book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in the book. It has 44 pages and 4 cuts.

3	Wood's Common Objects of the Microscope**.....	47
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8	What to Do and How to be Happy While Doing It, by A. I. Root.....	50
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Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,

127dcb Sole Manufacturers,
Sprout Brook, Montgomery Co., N. Y.



Promptness is What Counts.

Honey-jars, Shipping-cases, and every thing that bee-keepers use. Root's Goods at Root's Prices, and the Best Shipping-point in the Country. Dealers in Honey and Beeswax. Catalog free.

WALTER S. POWDER,
162 Massachusetts Ave., Indianapolis, Ind.



IF YOU WANT BEES

That will just "roll" in the honey, try Moore's Strain of Italians, the result of 16 years' careful breeding.

Dr. H. B. Lung, Harrodsburg, Ky., says: "I have had the pleasure of seeing many fine strains of bees, yet I have never seen such industrious, energetic bees. I must express my admiration for your success as a bee-propagator."

Reduced Prices: Warranted queens, 70c; 3 for \$1.95; 1 doz., \$7.00. Untested, 60c; 10 or more, 50c each. Select Warranted, 90c; Select Untested, 80c; Tested, \$1.00. Select Tested Breeders, \$1.50 each.

Those who have never dealt with me, I refer to A. I. Root, who has purchased of me 808 queens. Catalog free.

J. P. MOORE, Morgan, Pendleton Co., Ky.

In responding to this advertisement mention GLEANINGS

BEGINNERS.

Beginners should have a copy of the Amateur Bee-keeper, a 70-page book by Prof. J. W. Rouse. Price 25 cents; if sent by mail, 28c. The little book and the Progressive Bee-keeper (a live progressive 28-page monthly journal) one year, 65c. Address any first-class dealer, or

LEAHY MFG. CO., HIGGINSVILLE, MO.

3=Banded

TESTED ITALIAN Queens,
from my own imported
queens, \$1.00 each.

Max Brauer, Beeville, Bee Co., Tex.

In responding to this advertisement mention GLEANINGS.

Queens, Either 3 or 5 Banded.

60c each; 6 for \$3.25. These low prices are to induce you to try them. Catalog free.

CHAS. H. THIES, Steelville, Ill.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee Hives, Shipping-Crates, Frames, Foundation, Smokers, etc.

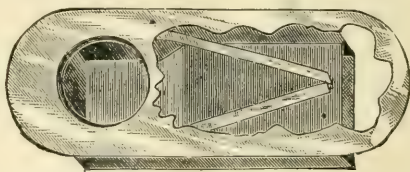
PAGE & LYON MFG. CO.,

87dcb

New London, Wis

Please mention GLEANINGS. 21-8db

Advantages of Bee-Escapes.



No sweat steals down the heated cheeks and aching back of the bee-keeper as the result of standing in the hot sun puffing, blowing, smoking, and brushing bees; no time is wasted in these disagreeable operations; and no stings received in resentment of such treatment; the honey is secured free from black or even the taint of smoke; the cappings are not injured by the gnawings of bees; and robbers stand no show whatever. If there are any broken burr-combs they are cleaned up by the bees inside the hive, before the honey is removed. **Leading Bee-keepers use the Porter Escape**, and say that without a trial it is impossible to realize the amount of vexatious, annoying, disagreeable work that it saves. The cost is only 20 cts. each, or \$2.25 per doz. As in the past, this escape is manufactured by the Porters, but The A. I. Root Co. has secured control of the sale for this country. Order of your dealer or of

THE A. I. ROOT CO., Medina, Ohio.

"The Southland Queen."

Send \$1.00 for the Southland Queen. Edited by the Atchley family. Plain, practical, and all fresh bee matter. Jennie Atchley is now conducting a bee-keeping school, that began in the June number. You can get back numbers.

A steam bee-hive factory; Root's goods; Dadant's foundation.

We have a fine lot of tested and untested queens for fall trade: Tested, \$1.50 each; untested, 75 cts. each, \$4.25 for six, or \$8.00 per dozen. Send for free catalog that tells all about queen-rearing, and sample journal.

THE JENNIE ATCHLEY CO.,
Beeville, Bee Co., Texas.

W. O. Victor, of Wharton, Tex., took

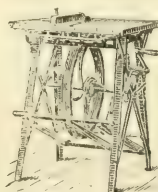
45,000 Lbs. of Honey in 1894.

He offers Italian Queens—good, old-style honey-queens—untested, first order, to any address, at 50c each. Also bees in any quantity; 450 colonies to draw from. **Root's goods constantly in stock.** Prices to suit the times. Buy near home, and save freight.

«MONEY-MAKERS»

Are a strain of business Italians that winter in the cold North, and are ready for business, with a bushel of bees, when the flowers bloom. They are gentle and industrious. Queens, warranted pure, in June. Each, \$1.00; six, \$5.00; doz., \$9.00. Safe arrival and satisfaction guaranteed. Never had any disease.

Address E. F. QUIGLEY, UNIONVILLE, MO.



Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will."

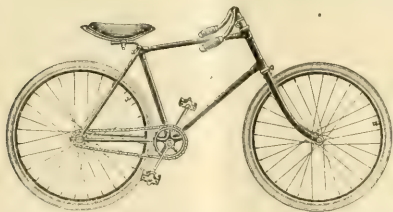
Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to

THE A. I. ROOT CO.

Please mention this paper.

Bicycles



I have done an extensive business in bicycles this summer, and have now on hand a number of second-hand bicycles, taken in trade or used as samples. Either these or new bicycles I will sell for the lowest cash prices, or will take honey or beeswax in exchange. Send for list.

J. A. GREEN, Ottawa, Ill.

CASH FOR BEESWAX

Will pay 24c per lb. cash, or 26c in trade, for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 30c for best selected wax. *Old combs will not be accepted under any consideration.*

Unless you put your name *on the box*, and notify us by mail of amount sent, we can not hold ourselves responsible for mistakes. It will not pay as a general thing to send wax by *express*.

THE A. I. ROOT CO., Medina, O.

BUFFALO, N. Y. Unsurpassed Honey Market
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 187fdjb and Prompt

CHAS. ISRAEL & BROS.,

486, 488 & 490 Canal St., Corner Watts St., N. Y.

**WHOLESALE
DEALERS &
COMMISSION
MERCHANTS.**
Established
1875.

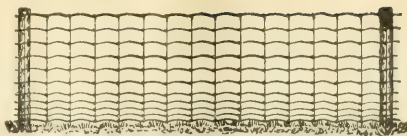
HONEY
—AND—
BEE SWAX.

5 to 10 Per cent Discount on Bees and Supplies.

WAX WANTED.

I. J. STRINGHAM, NEW YORK.
105 Park Place.

In writing advertisers mention this paper.



PLAYING HOG.

Our agents have been accused of gobbling up the best trade in a very hogghish way. Recently they imitated the animal in a still more realistic manner. One 176 lb. agent declared he could crawl through any wire fence where stags are not nearer than 21-2 ft. This statement published in our monthly paper has been going around and many stags are made and won by "Pawmen" in all parts of the country, much to the annoyance of owners of wide-mouthed fences.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

 In response to this advertisement, mention **GLEASINGS**

Honey Wanted.

Parties in the West having comb or extracted honey to sell may please make offers. We wish to buy some of both. Address

Jos. Nysewander, Des Moines, Iowa.



 In responding to this advertisement mention GLEANINGS

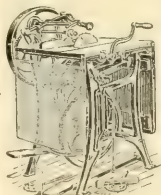
STILL IN THE RING.

Those large, beautiful, golden queens; bred for business; warranted purely mated. Sent by return mail—50 cts. each; 3 for \$1.40; 6 for \$2.75. Tested, 70 cts. each; 6 for \$4.00. Good breeding queens, \$2.00 each; satisfaction and safe arrival guaranteed.

E. A. SEELEY, Bloomer, Ark.

P. O. Money Order office, Lavaca, Ark. 7-20

✉ In responding to this advertisement mention GLENN'S



ONE MAN WITH THE UNION COMBINATION SAW

Can do the work of four men using hand tools, in Ripping, Cutting off, Mitering, Rabbeting, Grooving, Gaining, Dadoing, Edging-up, Jointing Stuff, etc. Full Line of Foot and Hand Power Machinery. *Sold on Trial. Catalog Free.* 1-24ci

SENECA FALLS MFG. CO.,
44 Water St., Seneca Falls, N.Y.

In responding to this advertisement mention GLEANING

FENCE



Why pay 60 to 90c. a rod for fence when you can make the
BEST WOVEN WIRE FENCE ON EARTH
FOR 13 TO 20 CENTS A ROD?

Horse high, bull strong, pig
and chicken tight. A man
and boy can make from 40 to
60 rods a day. Over 50 styles.
Illustrated Catalogue Free.
KITSELMAN BROTHERS
Ridgeville, : Indiana.



HONEY COLUMN.

CITY MARKETS.

DETROIT.—Honey.—Best white comb honey in fair demand at 13¢@14; no dark offered. Extracted, 6¢@7. Beeswax, 23¢@24. M. H. HUNT, Bell Branch, Mich. Sept. 20.

KANSAS CITY.—Honey.—The demand and supply of honey light. We quote white comb, 14; dark, 11; extracted, 4½¢@7. No demand for beeswax, supply light. Price 22¢ HAMBLIN & BEARSS, Kansas City, Mo. Sept. 19.

BOSTON.—Honey.—We quote No. 1 white, comb, 15¢@16, for northern stock; California comb, No. 1, 13¢. California extracted, 5¢@6. Good supply and demand. E. E. BLAKE & Co., Boston, Mass. Sept. 18.

DENVER.—Honey.—Since our last report there has not been much change in our honey market. The shipments we have received run below those of previous years in quality. We quote No. 1 comb in 1-lb. sections, suitable for our cartons, 10¢@11. Extracted, No. 1 white, in 60-lb. cans, two in a case, 6¢@7. Beeswax, 20¢@25. R. K. & J. C. FRISBEE, Denver, Col. Sept. 21.

PHILADELPHIA.—Honey.—Honey is moving off very lively. The demand for comb and extracted is a little earlier this year than usual. We find it harder than usual to sell dark comb, but good to fancy sells quick. We quote comb, 8½¢@14. Extracted, 5¢@5½. Beeswax, 25¢. WM. A. SELSER, No. 10 Vine St., Philadelphia, Pa. Sept. 20.

CHICAGO.—Honey.—We are obtaining 15¢@16 for strictly fancy white comb honey. Good to No. 1, 13¢@14; dark grades, 9¢@12. Extracted, 4½¢@7, according to quality, flavor, color, and package. Beeswax in very good demand at 28¢@30. R. A. BURNETT & Co., 163 So. Water St., Chicago, Ill. Sept. 18.

CHICAGO.—Honey.—We quote fancy white 1-lb. comb honey, retail, 15; wholesale, 14; second grade, 13; amber, 11¢@12. With colder weather and fruits out of the market, we look for a good demand for honey, as maple sugar and maple syrup are very high and scarce. Extracted, 5½¢@6½, depending on quality and package. Beeswax, 30¢. S. T. FISH & Co., 189 South Water St., Chicago, Ill. Sept. 25.

BUFFALO.—Honey.—We quote fancy honey, 15¢@16, with the receipts light; choice, 13¢@14; buckwheat moving slowly at 9¢@10; very good demand for beeswax at 3¢—would be pleased to hear from parties who have some. Extracted dull, and do not advise shipments. BATTERSON & Co., Buffalo, N. Y. Sept. 28.

ALBANY.—Honey.—We believe both receipts and sales of comb honey have been in excess of last season up to this time; but the stock has been for the most part second-grade clover and buckwheat, which would indicate that the crop of fancy white is very short. Buckwheat ample, and of fine quality. We quote No. 1 white, 14¢@15; No. 2, 11¢@12; buckwheat and mixed, 10¢@11. Not much demand yet for extracted except white clover and amber for bottling. CHAS. MCCULLOCH & Co., Albany, N. Y. Aug. 20.

NEW YORK.—Honey.—The market for comb and extracted honey is now open. Comb honey is not arriving as freely as expected, presumably on account of the prolonged heat, but is selling very well considering the hot weather we have had this time of the year. There is quite a supply of extracted on the market. Demand fair for California and Southern honey. We quote fancy comb, 1-lb., 15; fancy 2-lb., 14¢@15; 1-lb. white, 13¢@14; fancy 2-lb., 12¢@13; 1-lb. fair, 11¢@12; fancy, 2-lb., 10¢@11; buckwheat, 1-lb., 10¢@11; 2-lb., 8¢@9. Extracted clover honey, 6¢@7; buckwheat, 5¢@5½; southern, 5¢@6¢ per gal. Demand for beeswax fair, and stock limited. Average stock, 27¢@28; fancy yellow, 29¢. CHAS. ISRAEL & SON, 486 490 Canal St., New York. Sept. 23.

CINCINNATI.—Honey.—Demand is lively for new extracted and comb honey. Arrivals are fair, but insufficient for the demand. Comb honey brings 12¢@16 for choice white. Extracted, 4¢@7. Demand is good for beeswax at 20¢@21 for good to choice yellow. CHAS. F. MUTH & SON, Cincinnati, O. Sept. 18.

FOR SALE.—Choice extracted honey. ELIAS FOX, Hillsboro, Wis.

ALFALFA HONEY, very white, thick, and rich. Two 60-lb. cans at 7¢. Same, partly from cleome (tinted), 6¢. Samples, 8¢. OLIVER FOSTER, Las Animas, Col. eift

FOR SALE.—White comb honey, 14 and 16c, on board cars. G. R. ROUTZAHN, Menallen, Pa.

ALFALFA IN ARIZONA.—We will sell you alfalfa honey F. O. B. Phoenix at 4½¢ in 1000-lb. lots or more. Less than 1000 lbs. at 5¢ in five-gallon cans. Car lots a specialty. J. P. IVY, Secretary Bee-keepers' Association, Phoenix, Maricopa Co., Arizona.

WANTED.—To buy quantity lots of fancy comb honey. Also to sell water-white extracted honey in 60-lb. cans. B. WALKER, Evart, Mich.

FOR SALE.—Buckwheat and amber extracted honey in half-barrels, about 150 lbs. each; well ripened. Prices on application. J. I. PARENT, Birtchton, Saratoga Co., N. Y. eift

FOR SALE.—1200 lbs. of honey, in 60-lb. square cans, 6½ cts. per lb., f.o.b. cars here. Sample by mail. R. H. BAILEY, Ausable Fork, Essex Co., N. Y. 195t

FOR SALE.—We have 14,000 lbs. of choice white extracted honey, in barrels of about 400 lbs., at 6 cts. per lb., f.o.b. cars at apiary. Sample via mailed for 8 cts. in stamps. THE CROSBY CO., San Mateo, Fla.

TRY US. We sell your Poultry, Veals, Fruits and all produce at highest prices. DAILY RETURNS. For stencils, prices and references, write F. I. SAGE & SONS, 183 Reade St., N. Y.

QUEENS. 10 fine untested at 35 cts. J. P. F. SMITH, Liberty, - Missouri.

PURE WHITE FANTAIL PIGEONS, \$1.25 PER PAIR. MISS AMY E. GIBBS, Norwalk, Ohio.

Potatoes. Craig's Seedling, Everett's Early, and Freeman, at prices given by A. I. Root. W. B. COLLINS, Blackwater, Cooper Co., Mo.

Black and Hybrid Queens For Sale.

A few hybrid and mismatched queens, young and fine ones from one of my out-apiaries, 25 cts. each. CHAS. H. TRIES, Steeleville, Ill.

I have about 12 hybrid queens which I will dispose of at 15 cts. each. They are good ones of the kind. G. R. ROUTZAHN, Menallen, Adams Co., Pa.

Seven fine young hybrid queens at 20c. J. P. F. SMITH, Liberty, Mo.

CONVENTION NOTICE.

The Southwestern Wisconsin Bee-keepers' Association will hold its next meeting at Plattville, Wis., Oct. 8th and 9th, 1895. Come all. Don't get discouraged, even if we haven't got a crop of honey. We shall have a good time at Plattville just the same. Bring your wives and daughters with you. Many interesting subjects will be discussed.

M. M. RICE, Sec., Boscobel, Wis.

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BEESEXWAX WANTED.

Our present stock of beeswax is not large, and we invite shipments from bee-keepers having any to offer. In order to turn more of it our way we will pay, till further notice, 24¢ cash, 26¢ trade, for average wax delivered here; 1 to 2¢ per lb. extra for choice yellow sun-extracted wax. Please note, also, that we are making special prices, below catalog quotations, on comb foundation ordered this fall.

COMB HONEY.

Our supply of comb honey is exhausted. We have some offers, and may have a supply within a few days. We should be pleased to hear from those not too far away who are seeking a market. We have an opening in Cleveland for several thousand pounds of choice honey in 1-lb. sections. The price is not as strong as we wish it were in the interests of bee-keepers. The Cleveland market brings 14 to 16 cents for best grades, less freights and commissions.

EXTRACTED HONEY.

We have a good supply of choice extracted honey in 60-lb. cans. We have both the California white sage and clover and basswood; also some very fine white honey, of a mild and pleasant flavor, from Michigan. Early in the season the Michigan bee-keepers were feeling discouraged at the outlook; but many of them have secured a good crop of very fine honey, gathered mainly in July and August, from something not generally known as a honey-plant. We should be glad to know more of the source of this crop of honey. Our prices are 8¢ per lb. by the case of 2 cans, for any of the above-named varieties. Large lots, at special prices, quoted to those interested.

AUGITE STOVE-MATS.

Although we have not been saying much about these mats lately they have not lost one whit of their virtue. The man who has failed as yet to supply his wife or cook with one of them ought to be ashamed of himself. Those who use them say they would not be without them because of their great advantage in cooking; and to think that any cook should be obliged to get along without one when the best one made, the original augite, can be obtained for 5 cents each, 50 cents per doz., or \$5.00 per gross; by mail 5¢ each, 50¢ per doz. extra. If you can not afford these prices you can still get the mat free. We are determined to get them into the homes of all our readers and their



friends, so far as we are able, and are willing to go more than half way. Send in your renewal to GLEANINGS before the time paid for is up, and we will mail you a mat free; or secure a new subscriber to GLEANINGS and send it with \$1.00 and we will send you 2 mats, or one to you and one to the subscriber, as you may direct; and please notice, all new subscriptions received before Jan. 1, 1896, will receive the paper from the time the subscription is received till Jan. 1, 1897—that is, 15 months if sent right away. This is in addition to any premium that we may offer; but remember, if we offer more than one premium you must choose between them. You are not entitled to several unless it is plainly so stated in the offer. Now, we want to see our pile of thirty gross of mats speedily reduced; and that we shall have to get more to supply the demand.

Wants or Exchange Department.

Notices will be inserted under this head at one half our usual rates. All advertisements intended for this department must not exceed five lines, and you must say you want your ad in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchange to cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20¢ts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange several good safety bicycles. Honey wanted. Send sample.
J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 26-in. planer, power scroll saw, all iron; tenoner, and mortiser, for portable sawmill, or other wood-working machinery. Will give a bargain for cash.
GEO. RALL, Frenchville, Tremp. Co., Wis.

WANTED.—To exchange foundation-mills and honey-extractors for honey or wax.
I. J. STRINGHAM, 405 Park Place, New York.

WANTED.—To exchange 200 colonies of bees for anything useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange pure bred short-horn cattle, either cows or bulls, for clover or basswood honey. If you want good cattle, write me for prices.
CALVIN LOVETT, Otsego, Mich.

WANTED.—To exchange 2 female fox hounds in whelp; also violin, organ, bone-mill, and set of butcher tools, for any thing useful.
ELIAS FOX, Hillsboro, Wis.

WANTED.—First-class young man to sell honey and celery throughout city of Kingston, 23,000 inhabitants.
AARON SNYDER, Kingston, N. Y.

WANTED.—To exchange 28-inch pneumatic, for lady or gent; also a lot of fine young queens for honey or offers.
CHAS. H. THIES, Steelville, Ill.

WANTED.—To exchange English Beagle hounds, both sexes, old or young, choice bred, for modern fire-arms or offers.
D. S. HALL, South Cabot, Vt.

WANTED.—To exchange raspberry and blackberry plants, \$5.00 per M., for currant-plants.
A. F. LAWRENCE, Hickory Corners, Mich.

WANTED.—Any one having postage-stamps to exchange or a collection to sell, to write at once. Would like to hear from all collectors.
A. E. COLE, Plainfield, N. J.

WANTED.—To purchase swarms of live bees.
LLOYD BROS., Cincinnati, Ohio.

WANTED.—To exchange 10 colonies Italian bees. What have you to trade?
CASSIUS PROVINCE, Masontown, Pa.

Prices Reduced.

The time of the year has come when nuclei should be united, and I wish the queens that I have on hand to move off as rapidly as possible, hence I will sell a single queen for ninety cents, or three for \$2.00. Remember that they are strictly first-class, tested queens, and that they will be sent by return mail as long as they last, and when they are gone I will stop my advertising. REVIEW one year and one queen for \$1.50. REVIEW and the 50-cent book, *Advanced Bee Culture*, for \$1.25. The REVIEW, book, and queen for \$2.00.

W. Z. HUTCHINSON, Flint, Michigan.

THE TORONTO CONVENTION REPORT FREE!

A Full Report of the Proceedings of the North American convention held at Toronto, Canada, will appear in the *weekly American Bee Journal* immediately after the meeting, Sept. 4, 5, and 6. The first installment will be in the number for Sept. 19. If not now a subscriber, you can have that Report free by sending \$1.00 now for the *American Bee Journal* for 1896, as we will "throw in" the balance of the year 1895, beginning with Sept. 19, to new subscribers. Think of it! over 15 months (or nearly 70 numbers) of the old *American Bee Journal* for only \$1.00! Sample copy of *Bee Journal* free.

And, besides all that, each new subscriber will receive a free copy of the 160-page book, "Bees and Honey." Better send on your dollar at once, and join the procession. Mention this paper, please.

GEO. W. YORK & CO., 56 Fifth Avenue, Chicago, Ill.

Proof Beyond Doubt.

A customer, looking over my 400 hives in home apiary, said, "Where are your bees? Mine were flying all around thick this morning." I said, "Just stop; look down at any hive." He was amazed. They were just pouring in thick with their heavy loads. This proves two things—they can't be excelled as workers, and quiet.

I opened several hives. He had no veil; was in the apiary $\frac{1}{2}$ of an hour; was not bothered once. Try them. Untested guaranteed queens, 75c. Send for whole sale price list.

Wm. A. Selser,
Wyncote, Pa.

Headquarters in Missouri For Root's Goods.

Can supply you with all the fixtures used in an apiary. Best goods at lowest prices. Catalog free.
JNO. NEBEL & SON, High Hill, Mo.

Belgian Hares! No better in America. Breeders, \$4 a pair; young, \$2. Heavy stock. First-prize buck. Stamp.
W. W. KULP, Pottstown, Pa.

World's Fair Medal

Awarded my *Foundation*. Send for free samples. Dealers, write for wholesale prices. Root's new *Polished Sections* and other goods at his prices. Free Illustrated Price List of every thing needed in the apiary.
Bell Branch, Mich. M. H. Hunt.

SECTIONS, BEE-HIVES, SHIPPING-CASES

We make a specialty of these goods, and defy competition in quality, workmanship, and prices.

Write for free, illustrated catalog and price list.

G. B. Lewis Co., Watertown, Wis.

In responding to these advertisements mention this paper.

If You Want a PEACH

Plum, Pear, Apple, Cherry or Quince Orchard, or anything in the way of Small Fruits, Ornamental Trees or Shrubs, Japan, Holland or other Bulbs; write us your wants and we will quote you low prices. Everything of the best—for Orchard, Vineyard, Lawn, Park, Street, Garden and Conservatory. Millions of Trees, Shrubs, Roses, Vines, Bulbs Plants, etc.

Price List and Catalogue Free.

42nd Year, 1000 Acres. 29 Greenhouses.

THE STORRS & HARRISON CO.,
PAINESVILLE, OHIO.

Dovetailed Hives.

Sections, Extractors, Smokers, and every thing a Bee-keeper wants. Honest Goods at Close Honest Prices. 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

MUTH'S HONEY-EXTRACTOR, SQUARE GLASS HONEY-IARS.

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "Practical Hints" will be mailed for 10c in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.

Stingless Bees! See page 525, GLEANINGS, June, 1895.
H. Alley, Wenham, Mass.

If Tons of Honey,

Pleased Customers, and Increasing Trade is a criterion, then my queens are satisfactory. Warranted purely mated queens from 5-banded strain, 75c; six for \$4.00; dozen, \$7.50. Safe arrival and satisfaction guaranteed. Send for free circular.

J. B. CASE, Port Orange, Vol. Co., Fla.



Vol. XXIII.

OCT. 1, 1895.

No. 20.

STRAY STRAWS

FROM DR. C. C. MILLER.

IF YOU MUST FEED, better rush it.

SOMNAMBULIST, in *Progressive*, seems to be warmly drawn toward mustard as a honey-plant. But mustard often draws warmly.

SECTIONS that are extracted, to be used another year, must be cleaned out *by the bees*, or your sections will be likely to contain candied honey.

AUSTRALIANS are giving attention to the question whether it may not be feasible and profitable to so manage as to increase the production of wax.

"ONCE OR TWICE, when I was not present, somebody said there was a little jangle," says A. I. Root. p. 713, which goes to show he ought to have known better than to be absent from the convention.

THAT VANILLA FLAVOR hardly came from poppies, as hinted on page 704, for I had the same-flavored honey a year or two ago, and there are no poppies here. [Can you guess what it did come from then?—Ed.]

APIS DORSATA. The editor of *Review* ears that the introduction of the big Indian bee might be like that of the English sparrow, the new bee living wild and using the nectar that our hive bees need.

HENS' EGGS were put in a colony of bees for hatching, by Mr. Schornack. In a week the eggs had started to hatch, but none ever produced chickens.—*Centralblatt*. [Why didn't you give your rotten-egg experience along the same line?—Ed.]

THE CROCK-AND-PLATE feeder is as good as the Miller feeder, except when you want to feed more than the crock will hold at one time. [Fill the crock once or twice more as the case may warrant. That's the way we do.—Ed.]

A PICTURE of alfalfa is hardly needed for those who are familiar with sweet clover. Just look for a plant with sweet-clover leaves and

purple blossoms. [That's good; but will the Western bee-keeper agree as to this similarity?—Ed.]

SEVERAL CASES of foul brood broke out at the Michigan Experiment Apiary this season, in colonies that were diseased years ago, but healthy since. Mr. Taylor thinks the dearth caused the bees this year to eat honey that was stored years ago with foul-brood germs in it.

DID YOU EVER notice how much harder it is to get bees to take feed from a feeder in spring than in the fall? It might pay to put a story of empty combs over an excluder in the fall, and feed enough to have them filled, just to have them ready for the next spring. I'm trying it.

IF THE INTEREST among bee-keepers continues in such forage-plants as crimson clover, sweet clover, alfalfa, *lathyrus sylvestris*, etc., the tables will be turned; and instead of agricultural journals with a bee department there will be bee-journals with an agricultural department.

SOMNAMBULIST complains in *Progressive*, in a not very sleepy way, of the Ohio law that makes sweet clover a noxious weed, to harbor which is a crime, and wants me to go as a missionary to labor with the heathen legislators of Ohio. Messrs. Boardman and Root are the men for that job.

HASTY, in *Review*, suspects that not more than half the eggs laid by a queen are hatched. I suspect, Hasty, that your suspicion is not above suspicion. [A good many things seem to point that way, that's sure. We ought to have more light on this point. Nudge experimenter Taylor's elbow.—Ed.]

A HASTY VISIT the other day to the small-fruit farm of H. R. Cotta, Freeport, Ill., made me almost wish I could give up bees and go into small fruits. I wish A. I. Root had been along to see the fine shape in which every thing was kept; \$400 an acre from Ancient Briton blackberries!

THE EDITOR of *Review* says he no longer looks to see if a young queen gets to laying all right, philosophizing thus: "Suppose a queen is lost,

the hive, combs, and honey are left, and there is a better chance in the field for the other bees." I've known cases in which neither combs nor honey was left. [My experience seems to show that it does pay every time to see whether a young queen actually turns out to be fertile and a good one. Too many queens turn up missing to make such a policy as Bro. Hutchinson indicates a safe and profitable one, in our yards at least.—ED.]

I'M THANKFUL, very thankful, to say of my bees, that lately "a change has come over the spirit of their dreams," and they've stopped dreaming, gone to work, and are now filled up heavy for winter. Who knows but some of these years they may conclude to work again during the clover harvest?

ONE ADVANTAGE of using percolating feeders, or the crock-and-plate method, is that robbers don't trouble as they do when you use syrup. When you pour in the sugar, robbers don't care for dry sugar. □ When you pour in the water, it stays on top, and robbers don't hanker after cold water. [Yes, and that advantage is a big one in a beginner's case.—ED.]

ALFALFA is the same thing as lucerne or luzerne. Formerly it was known in this country by its French name, "lucerne;" but in 1853 it was introduced into California from Chili, and has since been known by its Spanish name, "alfalfa." It is also called Chilian clover and Brazilian clover. Its botanical name is *Medicago sativa*.

F. A. LOCKHART has mailed me a cage with equal numbers of Carniolans and blacks. The one lot are nearly solid black, and compared with them the Carniolans are regular zebras, striped alternately gray and black, above and below; no trouble to distinguish them, and no trouble to describe the difference. □ [No, not if the other fellow has seen the difference.—ED.]

INTRODUCING QUEENS. Here's the plan N. D. West gives in *Canadian Bee Journal*. Remove the condemned queen, and then, before closing the hive, give them a queen in West's spiral-wire queen-cage, with a piece of hard candy $1\frac{1}{2}$ inches long in the large end of the cage (use store candy). Then place the cage in the hive on the top of the frames, or between the combs, and in from 30 to 48 hours the queen will be liberated.

FOUL BROOD being discussed at a convention reported in the *Australian Bee Bulletin*, a number claimed that the introduction of Italians made it easier to prevent and cure the disease. Isn't that a new claim for the yellow favorites? [Yes. It has been urged by a few that our native blacks are much more hardy and more proof against disease; but real facts here from careful unprejudiced observers, I think, show that there is no real difference.—ED.]



THE BEE-KEEPERS' UNION.

MUCH NEEDED AND IMPORTANT WORK FOR IT TO DO; ADULTERATION IN CALIFORNIA; THE TRUTH OF AN "ESTIMATE" QUESTIONED.

By C. W. Dayton.

The amalgamation of the N. A. B. K. A. and B. K. U. might turn out like uniting two colonies of bees—in a little time the united colony is no stronger than the single one. That there is need of a more powerful organization of bee-keepers, I do not hesitate to declare. What is meant by "powerful" relates more directly to the fatness of the treasury. An exhaustless treasury and an active executive constitute just such a team as we want. The present executive force would be very hard to improve; but if bee-keepers would rally for the protection of their interests only slightly there might be \$50,000 in the treasury. I will mention some of the purposes for which such money might be used.

First, there are some counties in this State where the keeping of bees is prohibited. Such laws were made on account of the supposed harm which bees do to grapes. At that time there were thousands of acres of vineyards. A disease has since destroyed the grapevines, and the wineries are dilapidated and fallen down. But the laws against the bees still remain. Some of the worst-cut grapes I have ever seen were several miles from an apiary, and at the time of a honey-flow. There were many Mexican hornets, but no honey-bees working upon them. Last year a Los Angeles County supervisor impetuously charged all such depredations to honey-bees. He said that one hive of bees standing at the corner of a vineyard would destroy the grapes for several rods around. A bee-keeper may argue for the bees, and his arguments have no weight, simply because he keeps bees. A vineyardist may charge all the damage to the bees, because he deludedly thinks bee-keeping a lazy man's occupation. We need a union which is able to place three or five disinterested and competent men in the field, and keep them there until the facts are established; then fight the unjust laws until they are reversed. Bee-keeping is one of the useful and pure industries; but it has been stamped into the ground because it happened to come in the way of the wine industry. Next time we may be compelled to move because our bees sip at and get trapped in the emptied beer-kegs standing by the saloon. The bees ought to be ashamed of this; but here in California, water is sometimes very scarce. The wine industry is a positive injury and

nuisance, carrying debauchery and crime in its wake, while bee-keeping brings health and intelligence at every step of its progress. It is not only necessary that the facts be ascertained for bee-keepers, but they should be established by publication and circulation, so that any backwoods ignoramus like the Los Angeles supervisor can not wield a contaminating influence. The more power and execution there is in the organization, the more regard and friendship there is cultivated for the industry itself.

In many cities, especially where the corporate limits include large scopes of farming lands, it is sought to prohibit the keeping of bees. This was the case in Los Angeles, either because the city fathers wanted business to indicate that they merited their present salaries, or because the bees paid an occasional visit to the fruit-stands. I am uncertain which. But I do know there were one thousand flies to one bee; and while flies are filthy, such bees are extremely harmless and cleanly. The fear of an interference by the Bee-keepers' Union permitted the bees to remain.

Another line of occupation for such an organization is the detection and punishment of adulterators. First, there should be laws made to prohibit adulteration. The only way to get them is to put shoulders to the wheel, and push. The ground is smooth, and the axle well oiled, but the push is lacking. Just a bare willingness will almost start the wheel moving. It needs detectives to gather evidence, and lawyers to tell what evidence is. It is estimated that one-half the honey produced by California, has been adulterated with glucose, and sent east, by a few if not by a very few wholesale firms. Honest dealers refused to buy, because eastern markets have been ruined by the hand of the adulterator, and the best of honey now goes begging for 4 cents while there is only a partial crop. Thus the wealthy adulterator's coffers have been filled, and the pockets of the poor bee-keeper are now being emptied, and the eastern honey markets are stagnated to a corresponding extent.

Another imposition upon our welfare is the local retailer or grocer. He is the man who makes a living by constantly beating down all prices but his own. He tells the honey-man there is a big crop when it is very small. He tells the honey-man that his honey is of poor quality. Then when he sells it out he tells his customers how fine the quality is; docks two cents for propolis on sections, but sells it out as if there never was any such thing as propolis; pays 4 cents a pound for extracted honey, which he sells at 8 or 10, while he pays \$5.50 per 100 pounds for sugar which he sells out at 19 pounds for one dollar, or $\frac{1}{4}$ cent per pound less than the purchase price. One is a local, neighborly industry, while the other is Spreckles'

monopoly, of the Sandwich Islands. If the grocer will charge as much for selling sugar as honey, it will be eight pounds for \$1.00. This will check the consumer's greediness for that foreign monopolistic commodity in favor of what may be obtained near home. That will make honey 10 cents in place of 4.

Still another complaint I have to make is in regard to the imposition of licenses upon those who peddle their own productions, by county supervisors and town councils. At the bottom of this will doubtless be found the merchants, in the endeavor to swing the retail business into their exclusive hands. Fruit, tinware, or notions is different from honey, because they can not be, or are not liable to be, adulterated. I believe that nine-tenths of the honey adulteration of the past was the work of dealers. Not only city dealers, but several country merchants, have boasted of how they did it. With their high profits on honey, and no profits on sugar, and their adulterating tendencies, are we going to submit without a murmur to their sitting down upon our humble vocation with a license? Such a law is a step in favor of capital and monopoly, both great and small.

Florence, Cal., Sept. 10.

[I think you are quite right as to fields of work for the Union. I have, as you may know, advocated that it was high time for it to branch out, and one of these lines of work was the hiring of detectives to follow up suspected cases of adulteration, and not wait for outside sources to bring in a mountain of evidence, for such evidence will not usually come in of itself. But it seems to me the estimate is rather sweeping, that assumes that "one-half the honey produced by California has been adulterated with glucose." I don't believe it. While I do not call in question your veracity, I should like to know the source or basis upon which such estimate is made, or the person or persons making it, before I could swallow it. You see, if it is not true, or is based on insufficient data or poor authority, the mere reference to it in print, *unchallenged*, does harm. Suppose, for instance, that the newspapers all over the land pass the statement the rounds, that half of all the so-called California honey is adulterated, and then back it up by saying that California bee-keepers generally believe it, what will be the effect on consumers? If such a thing is *not* true, a fearful damage will be done to California bee-keeping interests. Now, then, GLEANINGS wishes to be enlightened on this "estimate." Let it be sifted to the bottom; and if it is true, we will, with the help of the Union, try to remove the condition that makes such a statement true.—ED.]

CALIFORNIA ECHOES.

By Rambler.

"The pleasant occupation of tending bees," says Bro. Hutchinson, in the *Cosmopolitan*. Are we to be considered as bee-tenders, instead of bee-keepers after this?

What a fuss you benedicts make over the mere suggestion of crackers and cheese! I

should like to see your antics if you had to roll up in a blanket and sleep in the shelter of some friendly rock. Still, some very well-regulated people find health and pleasure in so doing in this country.

That was an unfair proceeding on the part of Bro. Schaeffle, in relation to smiling Betsy. He withheld a very important item. Those natives have a superstition that, if they allow their photos to be taken, they will not live long. Poor smiling Betsy, after the camera episode, went into decline, and died in about six weeks. *Vale* Betsey.

Cyprian bees are at a discount in this portion of the State. Their vindictive nature and the swarming impulse are undesirable qualities to the majority of bee-keepers. Mr. D. A. Wheeler, of Riverside, having several hundred colonies of this race, has resolved to queen his apiaries. Mr. F. A. Lockhart, of Lake George, N. Y., is filling an order on this job for 300 queens, Italian and Carniolans. Cyprians must go.

I do not consider that McIntyre-Holly test a fair one; for a hive with loose frames, and seven inches deep, can not be considered a Heddon principle at all; and if Mr. Holley is satisfied with the test, I think an important portion of his education in relation to the Heddon hive was neglected. With a frame 5% deep, with proper spaces, I have found a prolific queen ready to occupy three chambers. But I will say nothing further upon this vexed question. I suppose, in spite of all I may say, these friends will persist in sticking to their jumbo barrel.

A lawyer, reared in the backwoods, as the story goes, began to rise in his profession, and his increasing circle of friends found that he used a common flour-barrel in which to store his documents, letters, etc. If a document was needed he would plunge his hand into the barrel, and seldom failed to bring forth the right paper. His well-meaning friends made him a present of a new up-to-date secretary, with an adequate supply of pigeon-holes. The documents were transferred from the barrel to the new-fangled thing; but it was not adapted to the man, and he soon returned to the use of the barrel again. It strikes me that this is the reason why Bro. B. Taylor failed with the divisible-brood-chamber hive.

On page 642, under "market gardening," the pit, or vault, under water-closets, is condemned, and justly. But here is a point that I have observed that is not mentioned. Many such pits in some of our lively towns here in California, and probably elsewhere, are subject to being flushed with water during the irrigation of land near by. A period of several weeks elapses before more water is turned in, and between times the water becomes stagnant, and a

breeding-place for millions of mosquitoes. Then people go around wondering where all the mosquitoes come from; put up screens, burn buhach, and make a great fuss. It all comes from that nasty pit; and if it must be used, the throwing in of a little chloride of lime occasionally would cure the mosquito nuisance if not the stench.

THE SIZE OF HIVES.

THE RELATIVE ADVANTAGES OF LARGE AND SMALL SIZES DISCUSSED FURTHER

By Miss Emma Wilson.

The hive question bothers me a great deal. I am like the boy who wanted to eat his cake and keep it too. I don't want to give up the eight-frame hive, it is so nice to handle, and such a comfort when hauling-time comes. And yet—and yet—I fear it is not big enough. In fact, I feel certain it is not, take it all the year round.

And now comes in the point Dr. Miller and I do not agree upon. I very much object to tiering up. Lifting off and on upper stories is too hard work. I very much prefer having all my frames in one story. He rather favors holding on to the eight-frame size, and giving extra stories when needed. I think that would be a good plan too, as our queens go readily from one story to the other, even if it were not for the great amount of hard lifting that is involved in it. Just think a minute about it. For every colony that is examined, that upper story has to be lifted off and then lifted back again, and the upper story is always the heavier one. After you have lifted off and on upper stories all day, you begin to think there is not much enjoyment in bee-keeping.

Another point in favor of one story is, I think I can find queens a little quicker with one story than with two. With two stories she has a little more chance to get out of your way.

Then the matter of wintering comes in for consideration. With the eight-frame hive there is always a little uncertainty as to whether they will have stores enough or not. In fact, you may feel pretty certain that most of the strong colonies will need feeding either fall or spring. With a larger hive there will be chance for extra frames of honey, to be used if needed, and I do believe that bees do just a little better in spring if they have an abundance of stores.

I feel very sure that we've had more swarming with the eight-frame hive than we used to have with the ten-frame hive. I don't know whether the smaller hive is entirely to blame for it or not. I don't have as much faith that plenty of room will prevent swarming as I used to have. It may help, but a good many of our colonies have made preparations for swarming with sixteen frames, and certainly no queen ought to feel badly crowded with that number.

If all our bees were kept at home, and we had

no out-apiaries, I think I should decide very quickly that I want a large hive. With a large hive you can have rousing big colonies, and they are the ones that give you the honey. If at any time you wish to contract down to eight frames, it is easily done. But, oh dear me! I just can't bear to even think of hauling the bees and lifting those great big clumsy hives again. I think that, on the whole, I shall still vote for the eight-frame hives in the out-apiaries, but will vote for a large hive at home.

Marengo, Ill.

□[I think most bee-men who have a liking for the two hives, and would take less account of the lifting item, would vote the other way—large hives for out-apiaries and the smaller ones for the home yard. The former, being less liable to cast swarms, would require less the constant watching of an attendant; but neighbor Vernon Burt, a strapping big fellow, with whom I talked yesterday, would vote as you do. Indeed, his out-yard has the eights run for comb honey, and the home the tens. During swarming-time he spends most of his time at his one out-yard. His mother and brother look after the home bees during his absence. As these colonies are larger, and are run for extracted, they do not require much of their attention. When the swarming-hours are over at the out-yard, Vernon returns home and gives these bees any attention, so far as room is concerned, that they may require. But suppose Mr. Burt had more than one out-yard. I think he would want the eight frames at home and the ten-frames at the out-yards.]

While I am about it, I may remark that friend B. says his ten-frame colonies, when made to occupy the whole set of frames during the *breeding* season, and are then contracted down to eight with a dummy, are just the ones to give more honey than those colonies that have been confined to the eight frame space all through. He would, if he were to start anew, have all ten frames, and these he would reduce, whenever it was to his advantage, to eight, by dummies. Here is one on the other side.—Ed.]

SMALL HIVES AHEAD IN HONEY; THREE MONTHS' HONEY-FLOW.

I see in GLEANINGS, Aug. 1, that Dr. C. C. Miller thinks it wouldn't make any difference what kind of hive he had if he could have a steady flow of honey for three months. When I send in my report, which I will do as soon as the honey season is over, the doctor will see that, the longer the flow of honey, the more need of having a hive that the bees will continue to store honey in. My bees are doing but very little at present in my large hives, while the small ones are piling in the honey as though they were going to work all winter. I have been careful to put a pencil-mark, with the date, on one of my best hives each time I have extracted.

I have just been and counted the marks, and find that I have taken the honey out 13 times. I looked in the hive and found it full again. I will take it out to-morrow. That will be 14 times this summer.

I have weighed the honey several times, and it would average 22 lbs. each time, amounting

to 308 lbs. I had 20 colonies to start with this spring (8 were small ones); I increased them to 30. I have taken out 3135 lbs. of extracted honey, and about 100 lbs. of comb honey. I don't want any one to think that all my small hives did as well as the one I marked, for they did not; but they all did much better than the large ones.

How would it do to cut the number in the tin tags and dip them in coal tar, or something black, then tack them on to a white hive? I think that would be the cheapest plan.

Bunkersville, Nev., Aug. 19. J. I. EARL.

[Cutting the numbers out in the tags would be much more expensive than putting them on with stencil or printing-press. The cutting would require a set of dies that would cost hundreds of dollars.—Ed.]

HOW BEES WORK ON STRAWBERRY-BLOSSOMS.

AUGER-HOLE ENTRANCES NEAR THE CENTER OF THE HIVE AN ADVANTAGE.

By *Elias Fox.*

I have been a silent listener to the long controversy as to whether or not bees work on strawberry-blossoms. I was indeed surprised to see the fact disputed, and by men who, perhaps, are old enough to be my father, and the difference of opinion is truly amusing. While I was at home on the farm my father kept a few bees, and we invariably raised strawberries; and it was as common to see bees working on the blossoms as to see them on the willow, dandelion, or any other blossoms in their respective seasons. When I left the farm, 13 years ago, I purchased two colonies of bees; and as long as I kept them here it was a common thing to see them working on strawberry-blossoms. After removing them from the village I did not raise any strawberries until the past two seasons. Last year I lost my wife about the time they were in bloom; and this year the sickness and death of my little boy filled my mind and heart with other thoughts, so I could not say positively whether they worked on them or not; but if they did not, it was on account of the atmosphere not being in proper condition for the secretion of nectar. The fact of bees working on white clover is not disputed; yet it is an undisputable fact that we often see fields white with it, and not a bee on it; while other years they will swarm on it as long as it lasts; but as for getting surplus honey from it in this locality, it is a rare thing late years. If the acreage of strawberries were as large as that of white clover, I doubt there being any dispute as to whether or not bees work on them.

I have heard it said a great many times that bees gather honey from corn-tassel; but I claim they do not—at least in this locality.

In regard to friend Miller's Straw, page 584, I would say I have an inch hole in or near the center of all my hives (front), and find it a great advantage, whether the Langstroth or a deeper hive, as the bees use it more in proportion than they do the entrance across the front at the bottom, and it seems to give a more perfect circulation, thereby lessening the liability of combs melting down in extremely hot weather, where no shade is used; at least, I used to be troubled somewhat until I tried this extra entrance, and since then have not had a comb melt; and when a swarm issues, this hole is crowded to its utmost. I may have something to say later on in regard to the 8 and 10 frame hive, and also the controversy concerning yellow bees.

Hillsboro, Wis., Aug. 8

[I should like to hear from you further on the subject indicated in your last sentence. I think we may now consider it fully settled that bees do work on strawberry-blossoms. And here is another that furnishes still further proof.—Ed.]

BEES NECESSARY FOR STRAWBERRY-FRUITING;
INDISPUTABLE PROOF; A HARD RUB
FOR THE CARNIOLANS; JAPANESE
BUCKWHEAT.

As to bees working on strawberry bloom, I would say that they do. I covered my strawberry-beds up with straw during the frosty nights of last spring, and uncovered them in the mornings, and by noon the bees would be fairly swarming on them. They worked on it equal to white or alsike clover. A few years ago I visited an extensive strawberry-grower a few miles from here; and after he showed me around the place I happened to see half a dozen or more hives of bees, and remarked to him, "I see you are a bee-keeper." He said, "Yes, I keep them to fertilize the strawberry bloom." He said that the only time he had failed to get a full crop was one season when it rained so much that the bees were not able to work on the blossoms except an hour or two at a time, and then only on the outside of the matted rows. He did not get any berries at all except where the bees worked. He told me he could calculate almost to a bushel as to how many berries he would get if the weather was fine when they were in blossom.

You will remember that I wrote an article in GLEANINGS a little over five years ago as to the stinging and honey-gathering qualities of the Carniolan bees. The breeder of these queens wrote me a long letter, but requested me not to answer in GLEANINGS, but to try them another year; so I have fooled with them ever since, getting more stings than honey. The first year I gave them ten frames in the brood-chamber; but as the surplus crop was a failure I concluded I would reduce them to eight frames the second season. They all wintered well the first winter; but long before the honey

harvest had arrived they had used up all of their honey, and had to be fed. They were meeker than Moses. I fed them by filling Mason cans with honey diluted with water, tying cheese-cloth over the tops of them, and inverting them over the brood-frames. When cans were empty I would remove cans and give the bees a quick shake in front of the hives to dislodge them; but every last one of them would have its sting fast in the cloth instead of letting go like decent bees. Well, four of them got to swarming, and their swarms swarmed so I got half of my swarms Carniolans. I used their combs for extracting-purposes, after they swarmed, to prevent increase. As to honey, the two that did not swarm did as well the second season as my Italians; but, how they stung when they were swarming! none of the family cared to be out of doors, as they were sure to be stung. No one would care to shake the bees off their combs, as they were afraid of being stung. To stand within ten feet of one of the hives in the fall, and look at them, they would come at you in a steady stream, which meant sure death if you did not make tracks immediately. They would drop on to any one like so many flies, and sting without any warning whatever. The stinging qualities of my bees have been increased over 50 per cent since introducing them.

Is it true that bees gather as much honey from Japanese buckwheat as they do from the gray and silverhull? I have heard farmers say that it hardly amounts to any thing for honey. At the south of me there is a large piece of common buckwheat, while in other directions there is nothing but Japanese. Well, the bees seem to prefer to go south—that is, the bulk of them. Two years nothing was sown but Japanese, and those years I got no honey from buckwheat to speak of. GEO. BROADBENT.

Factoryville, Pa., Aug. 12.

[Yes, Japanese yields as much honey as any other buckwheat, and very much more grain. The cases you mention do not prove any thing against the Japanese. All buckwheats some seasons fail to yield honey, and it is evident that difference in soils even on different farms not far apart makes some difference. Even if the bees do prefer to go "south" it may mean that the character of the ground in that direction is more conducive to nectar secretion.—Ed.]

CRIMSON CLOVER.

ITS BEAUTY AND PRACTICAL VALUE.

By L. Staples.

Crimson clover is an annual, and should be sown in the fall, in August, September, and October. It germinates very quickly, and grows rapidly through the fall and winter, and blossoms about May 1. In this latitude this clover can be sown after other crops have been removed from the ground, and in this way will

be of inestimable value in holding valuable nitrates in the soil that are otherwise washed out of the bare ground. It furnishes fall, winter, and early spring pasture, and enriches and stores up plant-food for next crop. A field of crimson clover in bloom is strikingly beautiful. Its marvelous beauty surpasses any thing ever seen in a field crop. It is good for hay; will yield from two to three tons per acre, and from six to ten bushels of seed. About eight bushels of seed is an average yield. The plant seems to flourish and do well in all soils, in a heavy clay as well as a light sand. Crimson clover makes a good bee-pasture, and every bee-keeper will sow a field of crimson clover as soon as he understands its value as a honey-plant. The seed being cheap, I predict that, when farmers see what this clover will do for them, they will scatter the seed on all vacant ground. Ten and twelve quarts of seed are usually sown on an acre. The ground should be prepared by plowing or cultivating shallow. Pulverize the surface, and cover the seed very lightly.



CRIMSON CLOVER.

Crimson clover is very hardy, and will succeed where the common red clover or wheat does. I think that, where failures are made with this plant, it is caused mostly by sowing imported seed. Always, if possible, obtain American-grown seed that is acclimated to this country, and a hay and seed crop is assured. No other clover remains green all through the winter; no other plant furnishes winter pasture like crimson clover. Every farmer and bee-keeper, and every lady who loves flowers,

should sow at least a small bed of crimson clover this fall.

Grand Rapids, Mich., Sept. 20.

[The cut below, from the *American Bee Journal*, gives another view of this truly remarkable clover. This, compared with our engraving in our Sept. 1st issue, p. 658, will give a good idea of the plant.—Ed.]

BREEDING FOR CERTAIN CHARACTERISTICS.

SOME OF THE PRACTICAL DIFFICULTIES IN THE WAY.

By Dr. C. C. Miller.

I have read with a good deal of interest the article by another of the Miller family, on page 620. He makes the point that we should watch for the individual peculiarities of colonies, and treat them accordingly. There may be something in that; but it isn't so easy of execution, for it may take us the whole of a season, or the greater part of it, to get acquainted with the peculiarities of some colonies; and then, just as we get them learned, a change of queens brings about a radical change in disposition; for with each change of queen, half the blood is likely to be changed by the new queen meeting a drone of different disposition.

May we not, however, take advantage of our acquaintance with individual colonies so far as to select for breeding, so as to perpetuate and establish the traits that best suit us? Alas! again there must be much random work, because we have control of only one parent; and yet by persistent selection something may be accomplished. Here's a colony not as active as others. Instead of letting it requeen itself at swarming, we supply it with a queen from our most active colony. This new queen meets a drone of stock so lazy that there is no perceptible improvement. Still, the resulting workers will not be so bad as they would have been if the mother as well the father had been of bad stock. By continual effort at weeding out the bad and encouraging the good, even if we never pay the slightest attention to the suppressing of drones of bad colonies, in time there will be a change in the character of the drones themselves. Even if we have no direct control of colonies scattered all around us, in time these will feel the influence of our efforts, and we may feel repaid for years of persistent effort at breeding from the best. If we can not give the matter full attention, even occasional efforts will give proportionate rewards. Keep trying, some of the time at least.

HOW LARGE IS IT DESIRABLE TO HAVE COLONIES IN SPRING?

A sentence on p. 628 arrests attention: "Too large a swarm in early spring is not desirable, and never does as well when the harvest comes." Now, I wish Mr. Hand would go a little further and tell us what constitutes too large a colony, and why a colony of a certain size in spring will

not do as well at harvest time as one a little bit smaller. If we know what the best size is, it will be easy to avoid trouble, for there are usually colonies too small that might be strengthened from the overgrown ones; and even if all were too large, it would be an easy matter to destroy the surplus population each spring.

WILL QUEENS KEEP GOING BACK AND FORTH FROM ONE STORY TO ANOTHER?

I continue to be misquoted in GLEANINGS, to the effect that I found queens would not breed properly in two sections of a hive at the same time. I do not remember to have ever said any thing of the kind. Indeed, I have always said that I had no difficulty in that direction, and that my queens went readily of their own accord from one story to another. I think the misunderstanding came from my reporting that, when I confined a queen in an upper story to oblige her to lay there, she utterly refused to do any thing of the kind—quite a different thing from the other.

You may remember that C. A. Hatch said his bees would go from the lower to the upper story, but would not go down again, and I could not understand why mine should act so differently. Afterward I thought it might be that his top and bottom bars were such as to form a barrier across which the queen would not pass, while in my case a space of nearly an inch between the two allowed the bees to fill in a lot of comb in which the queen could lay and then easily pass to the other story.

But the question came up whether my queens would act in the same way with my new frames having top and bottom bars each $1\frac{1}{8}$ inches wide, having respectively a thickness of $\frac{1}{8}$ and $\frac{1}{4}$, thus making, with the $\frac{1}{4}$ inch between them, a space of $1\frac{1}{8}$ inches without any comb, across which the queen must pass to get from one story to the other. Despairing of success without some special means, I studied a good deal upon the matter, and finally made connection between the two stories by means of two dummies of inch stuff, the lower dummy having a $\frac{1}{4}$ section of comb in its upper part, and the upper one having a section in its lower part, one placed in the hive directly over the other, no wood between the combs in the two sections, and a $\frac{1}{4}$ space between them. The bees promptly joined the two sections together, and the queen passed back and forth as I expected.

In order to compare, I tried one colony without this special help, and by some means the queen went in a short time from the upper to the lower story. Then, to give the matter a pretty full test, I put seven colonies on these frames in two stories. The combs were new, the colonies not overly strong, and there was no likelihood that in any case they would occupy more than eight combs. So I put four combs in the upper story and four combs in the lower story, leaving the queen in the upper story. If

I found eggs in the lower story after four or more days, then I would know to a certainty that the queen had gone below.

One colony was so weak that the queen could occupy only about three frames; and as these were all in the upper story, it was not strange she did not go below. Another remained in the upper story without going below, and I feel pretty sure she would have occupied more combs if they had all been in the upper story. As to the rest, however, the queens seemed to occupy one story as well as the other, altogether against my expectation. For instance, Aug. 22 I found, in No. 36, eggs in both stories; and also Aug. 26 I found eggs in both stories. That shows clearly that, during the week of Aug. 19—26, the queen must have made at least three changes from one story to the other. So I feel pretty sure that, as a rule, the queen will occupy two stories about as well as one, if the room in one story is not sufficient.

The question still remains, "Why do Brother Hatch's bees act so differently from mine?" I am wondering if it isn't just possible that his queens had so much room in the upper story that they did not feel the need of going down.

Marengo, Ill.

[Yes, your last sentence probably hits the key to the whole situation. How is it, Bro. Hatch?—ED.]

EUROPEAN MATTERS.

THE FORTIETH CONVENTION AT LEIPZIG: KING ALBERT AND THE BEE-KEEPERS; THE INTERNATIONAL BEE-KEEPERS' CONGRESS AT PARIS; AN 82-CENT FOUNDATION-PRESS IN GERMANY.

By Charles Norman.

On and after the 10th of August, the fortieth convention of the German, Austrian, and Hungarian bee-keepers took place at Leipzig, kingdom of Saxony. As that well-known German bee-master, Mr. Gravenhorst, usually reports to you on these conventions, I restrict myself to a few remarks. There were over 1500 participants present—a number unheard of at our conventions—and the whole affair was a great success. King Albert, of Saxony, who had accepted the protectorate over the convention, made his appearance for an hour or two, and was honored as only monarchs are honored by their humble subjects. He was cheered at and cheered at; he was, wherever he stepped, surrounded by the happy bee-keepers, "like the queen-bee by her bees;" he was "speeched at" by several orators, one of whom even spoke of "us Saxons to whom our king is the star and pride of our life." I wonder what climax this man would have come to had he had to address the highest German monarch, the emperor.

Well, great as the success of the convention was, yet one German reporter says that the German-Austrian reversible honey-extractors

are heavy and clumsy tools, far surpassed by those manufactured in England and the United States; he also says that we Americans exhibit our honey and bee-keepers' supplies in a much better and more systematic way; and, furthermore, he says that our rules for the distribution of prizes and premiums are much more detailed, strict, and specified.

By Mr. Gravenhorst's *Bienenzeitung* I see that at Paris, France, an international bee-keepers' congress was held in July. The German exhibitors are said to have excelled there; and it is quite refreshing, in these times of chauvinism (just think of how the anniversary of the victory of Sedan was celebrated in Germany the other day), that the French bee-keepers treated the German exhibitors and visitors as brethren and friends in the fullest meaning of the word. That hatred and so-called patriotic rivalry which are sown and nourished between the nations by their rulers are an artificial, unnatural, inhuman feeling which exists in minds of criminal turn only.

On the European continent, foundation-mills are much less used than in this country of ours. Very many bee-keepers there make their foundation themselves on hand foundation-presses or forms. Of one of them, Rietsche's, between 6000 and 7000 have been sold. By the *Leipziger Bienenzeitung* I see that another one is manufactured now which consists partly of cement, and is said to furnish thinner foundation than the Rietsche press, and to work faster than the latter, as no brushing off, no rubbing-in of honey and the like, is needed; its price is also much cheaper, being only three and a half reichsmarks, or about 82 cents. Should the press break by falling down, the manufacturer repairs it for a trifle, as the wrought-iron frame, the most valuable part of it, can not break. To use the press it is previously laid in water for at least five to six hours. Before the work is commenced, the table has to be wetted thoroughly, and it must be kept wet as long as the work is going on. Reason why: The press has no rim to collect and gather the wax which is forced out by the manipulation. This wax flows partly down on the table, and partly sticks to the outer part of the press from which, when wet, it can be easily detached—which operation, though, has to take place only now and then, when a thicker crust has formed. After the melted wax is poured on the press, the latter is closed with the left hand, as the weight of the upper plate itself produces the necessary pressure. Then the press is immersed in water for a moment, is opened on the table, and the foundation is loosened from it in a certain way by applying horizontally the blade of a knife. It is advisable that an assistant take hold of the foundation to cut off what may adhere on its outer rim. Before one proceeds to make another sheet of foundation,

the press is again immersed in water; then it is opened, and what drops of water may adhere are let run off; what water does not flow off, is almost momentarily taken up (swallowed) by the cement.

I also notice by the same paper that a Mr. A. Enge, of Klein-Helmsdorf, has invented a machine to uncap honey-combs with. The depth to which the uncapping is done can be regulated. It can be done down to the septum. The machine has been exhibited and worked at the above-mentioned exhibition at Leipzig, and has "created quite an astonishment," and was rewarded with a premium.

St. Petersburg, Fla., Sept. 16.

A LETTER FROM BELGIUM.

MORE ABOUT THAT CONVENTION WITH A MEMBERSHIP OF 2000 BEE-KEEPERS.

By Prof. J. Verlinden.

You have been sending me GLEANINGS regularly since 1892. It is certainly the apicultural journal which I read with the greatest pleasure. It is full of useful and interesting teachings; and the hours I have passed in translating it have been very agreeable. It is with impatience that I await its arrival at my



PROF. VERLINDEN.

table, and I then run over it eagerly. In order to know better your Belgian correspondent who will henceforth write more frequently, I send with my letter three photographs. One is a plain vignette of your humble servant. Another represents me giving a talk on the bee;

for, aside from my duties as teacher, the government has commissioned me to give a score of conferences in this province. I can thus qualify myself as professor of apiculture; and this second picture shows Prof. J. Verlinden giving a talk, and explaining the mysteries of the hive. The third picture represents my family—my wife and daughter, taken four and

south there is a woods. The honey flora is not rich, hence there are not many bee-keepers.

Born Nov. 4, 1860, I was appointed teacher in school No. 3, in January, 1882. So for thirteen years I have kept bees here. I have had 37 colonies; but to-day I have but 11. I shall increase the number during the summer.

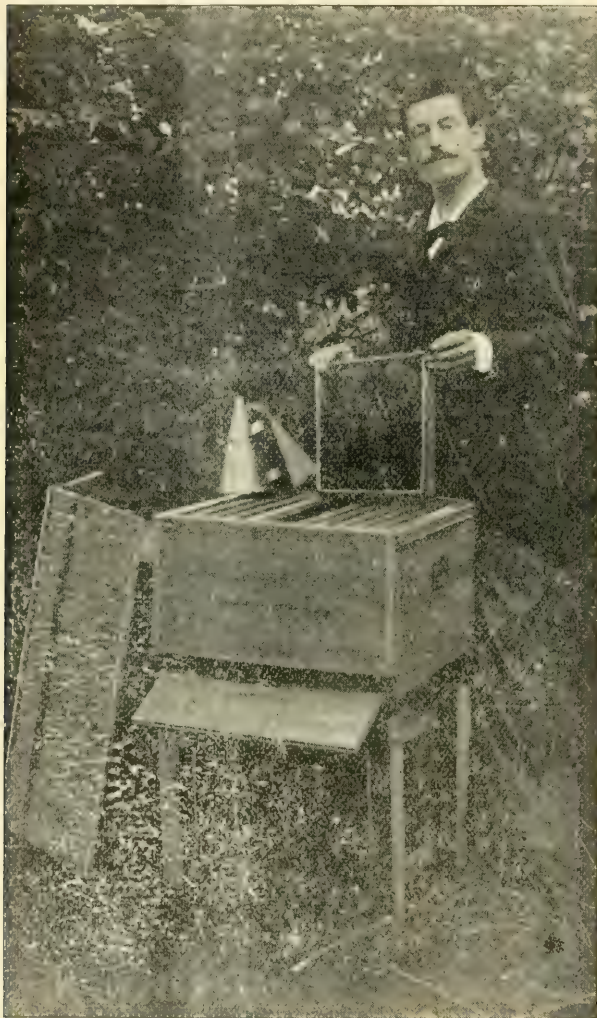
My straw hives are placed in a house-apiary having a capacity for 12 hives. It faces the south. The frames in the movable-frame hives, Dadant-Blatt type, are $16\frac{1}{2} \times 10\frac{1}{2}$; the other frames are $11\frac{1}{8}$ square. The hives are placed along a hedge, sheltered from the prevailing southwest winds, and face the east. The plan of the apiary was adopted two years ago. In front of the house-apiary there is a small space reserved for the cultivation of certain plants whose value as honey-producers I desire to ascertain. For example, there is borage, of which I sowed a packet of seed this year. Every year I renew the plantation, and make record of the going and coming of the bees to these flowers. That constitutes my apicultural sport. Near the house you see the poultry.

... I have the black bee of this country; but in my apiary situated on the land of Mr. F. Rainbeau, at Grand Hornu, two miles from here, I keep pure Italians. Mr. R. is the Director of Mines at Grand Hornu and at Marles, France. He was Chief Equerry under Napoleon III., and he married the daughter of His Majesty's private secretary. He is very rich, and intimately related to the Rothschilds.

The flora being rich here, the honey-flow is of short duration. May and June are the two months when honey abounds. Extracting is done during the first half of July.

My heaviest yield (1888) was 70 lbs. per hive. The average is about 43 lbs. We get but little section honey, as it is but little used. Comb honey in frames is most used. Extracted honey is widely used.

After my honey is extracted I let it ripen in a large can, so that the watery parts may come to the top, and thus allow the denser part to



PROF. VERLINDEN INSTRUCTING HIS CLASS IN BEE KEEPING.

a half years ago. [The first two being the best I herewith reproduce them in half-tone.—ED.]

Wasmès (Vom) is a city of 14,000 inhabitants, in a mining district. It has two churches, six brassworks, one tannery, four coke-ovens, one cork-factory, one manufactory of chicory and coffee, one brewery, two distilleries, three schools for boys and three for girls. On the

settle. Then, in order to make it granulate sooner, and have the granulation fine and thin, I beat the honey by means of a churn.

The honey sells for from 28 to 58 cts. per kilogram, or 2½ lbs.

GLEANINGS for Jan. 15 makes two quotations from *Progres Apicole*. Thanks. In your Jan. 1st issue, you say that "the Hainaut Bee-keepers' Association numbers more than 2000 members." The province of Hainaut, the most populous in Belgium, has about a million of inhabitants. Two thousand bee-keepers form a part of the federation; but many are not now in full membership. These 2000 members are divided into 34 sections, each one of which is entitled to three meetings a year. These three meetings are paid for from the treasury of the association. Besides, the sections can pay for additional meetings. Fifteen persons are commissioned to go over the province to give instruction in apicultural matters. The following year we form apicultural schools, like those already existing in Germany and in the United States. Each meeting teaches part theory and part practice at the apiary of one of the members of the association. The professor performs the operations. There are no very extensive apiaries in Hainaut. The largest, to my knowledge, does not contain over 50 hives. One person, half a mile from here, makes a specialty of apiculture. He has 250 or 300 hives in 7 apiaries, all straw hives, one story. He buys much honey of strangers, which he manipulates before sending it to its destination. The greater part of the members average only four hives.

In a future letter I shall speak of the different kinds of hives, and of the flora of each country in particular. I read with much interest Mr. Norman's Chat on European Matters. I hope he will not forget the Apicultural Federation of Hainaut.

Wasmes, Belgium.

[We are glad to hear from our Belgian correspondent, and hope we may hear from him further.—Ed.]

THE DARK AS WELL AS BRIGHT SIDE OF APICULTURE.

WOULD BE A PAUPER IF HE DEPENDED ON
BEES OR BERRIES.

By L. A. Dosch.

I have kept bees on a small scale for over 15 years. Last year we got a little honey; colonies were strong, and in good condition. White clover was burned out last summer by the drouth, also this year. The bees succeeded in storing a good portion of the fruit-bloom, and made a splendid start; but the drouth set in as early as April and May. It was so dry in Southern Ohio our corn would not come up. We had to replant and replant again to make sure of getting a stand of corn. The Big Mi-

ami River, which flows in sight of my place is so low that children wade it anywhere. All small creeks are dried up all summer. Farmers' cattle look poor—nothing but the bare earth to be seen in the fields. Cows can scarcely be kept in bounds by fences. Bitter weeds are devoured greedily if any are in sight. Farmers have been hauling water from the river all summer to plant tobacco, our main crop.

In the Miami Valley my bees never swarmed last year nor this summer. Bee-keeping as a business is out of the question in Ohio. Let the truth be said. Yes, we have some pleasant recollections of some very wet seasons ten years or more ago—so wet we could scarcely run a binder at harvest, for fear of sinking it out of sight. I wish we had some of those wet days. We could stand two every week. The wells are all going dry. Everywhere you can see the well-diggers at work sinking deeper and deeper for water. Never, in the history of Miami Valley, was there such long-continued dry weather. Hay is \$28 a ton; but farmers have none for themselves. There was very little to make. We are not saying this to complain; but these conditions surround us. Strawberries were of short duration; then raspberries came next. They came and went, but we scarcely realized their presence as it was so short. You might tell some people there is money in bees; but not the average Southern Ohio farmer. We do not write these facts to scare any one out of the bee-business; but I have read your Reports Encouraging and Discouraging, and felt prompted to write this for your readers over this vast land who used to live in good old Ohio. There seems to be a disposition on the part of your management of GLEANINGS to rather suppress such reports as this, and always speak in rather glowing terms of what the bees are doing for you. Now, we do not tell the half of what our suffering farmers have endured for the last two years; neither do we exaggerate in the least. That honey crops have been a dismal failure for a number of years is a fact, and we should be obliged to go around with our pants all torn if we depended on the "blessed bees."

We hope you will insert this letter, and not suppress a line, or cut out a line here and there, as you frequently do, until you cut it down to suit your taste, in trade-journal style.

Miamisburg, O.

[Friend Dosch, I have not a particle of doubt as to the truth of all you say regarding the weather; but there is a strain of uncharitableness in certain parts of your letter that I do object to most seriously; and that is, that we publish only the bright side of apiculture. If you will look at our back volumes you will see that we have published the dark side as well as the bright; but you should remember that bee-keepers are very much more apt to give their successes than their failures. Your last insin-

uation, that we cut and trim certain articles so as to pervert the meaning of a writer, is entirely without foundation. Much irrelevant matter that is written is necessarily struck out, otherwise GLEANINGS would contain 320 pages instead of 32. I would by no means say that the drouth is sent to you as a punishment for raising that which produces so much human misery as we all well know tobacco does; but how you can ask God to send you rain *in order* to raise a curse for your neighbors is one of those problems that are said to be past solution. "If ye keep my commandments, then I will give you rain in due season, and the land shall yield her increase," is a promise that I believe still holds good.

My good friend D., our stenographer, W. P. Root, submitted the above to me in reply to your letter. He wrote it immediately after reading your criticisms, suggesting it simply as a basis for what I might wish to say; and so, with the best of feelings in the world, I wish to add a little. Would a journal be profitable to its readers that would publish mainly accounts of floods, drouths, cyclones, and things of that sort? Where a lesson is to be learned, of course we can afford to give full particulars. But in the above you really, perhaps without knowing it, find fault with the dispensations of the Almighty. A year ago, when I passed through the southern part of the State of Ohio, I was delighted with the fertile fields and prosperous farming that met my gaze on almost every hand. I wonder if some of our readers in your locality can not give us something more cheerful, even though you have experienced every thing you mention. While your letter was in my hand, our book-keeper called my attention to the following:

My bees are doing finely. Hives run as high as 12 lbs. per day. I have them in the midst of 200 acres of alfalfa. R. L. SNODGRASS.

Gordon, Kan., July 18.

And the above, as you will notice, comes from drouth-smitten Kansas—the State that has suffered so much that for years it was almost a proverb. I quite agree with what my friend W. P. says in regard to the tobacco business. If I were engaged in any such industry I certainly should not think of asking God to bless my daily tasks.—A. I. R.]

NEW MEXICO AS A BEE-COUNTRY.

SIX MONTHS' HONEY-FLOW; A FAILURE OF HONEY CROP UNKNOWN.

By T. S. McClure.

Not since the brief mention made by Mr. Root on the occasion of his visit here several years ago, has any thing appeared in GLEANINGS with regard to bee culture in this place; yet this quaint old town on the Rio Grande can give reports all along this line that can be equaled by those from very few localities.

Here, within a radius of five miles, are two thousand colonies of bees, nearly all pure Italians, in eight-frame Langstroth hives—a rather crowded range, some will think; but the average yield per colony is just as high as when there were only ten stands of bees in the valley. The honey season begins with the fruit-bloom, in April; very soon afterward the surrounding mesa, mile upon mile, seems fairly alive with the busiest of bees, gathering the

fragrant nectar from the far-famed mesquite. Early in June we should have on each hive a full super of the whitest and most delicious honey that can be produced in the world. After, perhaps, a slight check, comes the alfalfa harvest. This plant blooms four times during the year; but the nectar from the later crops comes mingled with that of many wild flo. The tornillo yields as good honey as the mesquite; but much of the product of the late bloom, which lasts until October frosts, is of poor quality, and of amber hue.

What do you think of a six-months' honey season? And the best feature of all is, that a failure of the honey crop has never been known, nor has any disease ever appeared among the bees.

The pioneer bee-keeper of the valley, Mr. S. W. Sherfey, says that, in his sixteen years'



THOSE PETS.

experience, one year only was unfavorable, and he then averaged over 50 pounds of comb honey to the hive. The veriest novice is dissatisfied unless he is able to produce 100 pounds of comb honey to the colony, besides quite a quantity of extracted.

Bees always winter well out of doors, eating comparatively little, and requiring no attention.

A PLEA FOR ADOBE DWELLINGS.

When Mr. Root visited our town he was enthusiastic over our orchards and meadows, but gave his readers a very bad impression of our mud-built houses. Pardon a brief digression, and allow me to put in a plea for our adobe dwellings. With walls often several feet thick, which can defy alike the most intense heat of summer or cold of winter, the adobe is the house for the climate. Frame and brick houses are common, but are very much in disfavor. The adobe admits of a finish as

fine as marble. The pleasant roomy frame house with its wide verandas, which Mr. Root visited, and described as being the only frame house that he saw, *was entirely an adobe building.*

The numerous readers of GLEANINGS would be more than pleased to welcome Mr. Root should he ever carry out his expressed intention of visiting our valley again, and for a longer time.

[Our friends sent along a couple of photos, one of which we have reproduced in half-tone. In answer to a letter asking for the circumstances connected with the swarm on the hat, McClure Bros. write:]

THAT SWARM ON THE HAT.

The picture of the bees on the hat was secured in the following way: A photographer happened to be taking some views of our apiary, when a swarm came out. The apiarist shook a few of the bees on his hat, and about half of the swarm settled there, and a view was taken. We have an apiary of about 300 hives. The present honey season has been more than usually good, and that is saying a good deal. We ship a carload soon. **McCLURE BROS.**

Las Cruces, N. M., Sept. 11.

QUEENS SLOW TO WORK IN AN ADDED STORY.

By Dr. C. C. Miller.

Some of my experiences as to queens working in more than one story seem rather contradictory. When I have tried to force them to work in a story added above or below, they have seemed very stubbornly against it. I formerly had an impression that a queen in full laying, if changed into a different story or apartment, would be obliged to lay at least for a short time, and that, rather than let the eggs go to waste, she would lay them in any kind of cells to which she had access, providing they were not too deep.

In some cases I raised the story containing the brood-nest, put the queen into an empty story below, and put an excluder between. I have no exact memoranda of results, but I think there was no case in which she continued laying right along, and I think there was always at least a day or two of sulking.

Last year I tried to get brood in some half-stories by adding them above or below with an excluder between. They contained both foundation and old comb. The result was much less satisfactory than any thing ever tried with stories of full depth. I hardly think the depth of the stories had any thing to do with it, but the season was poorer. Looking at my book, I find I put a half-story over No. 57, May 14, A. M. May 15, P. M., I found no eggs, but found some May 16, A. M. I think this was one of the most successful cases.

At the other extreme was the case of No. 76. May 17 I put the queen above. By some means it was left till June 14, just four weeks later, when I found no brood or eggs in the upper story. Neither was brood to be found, nor eggs, in the lower story. I then put the queen into the lower story, and thought all would be well. But eight days later I found no eggs, nor did I find any later; and July 2 I found the old queen on the ground in front of the hive, when I killed her and ended the colony. A case of stubbornness with a vengeance, wasn't it?

In the same line of witness is the fact that it is an exceedingly rare thing to find a queen laying in one of my supers, although there is nothing to hinder a queen any more than a worker from going up. In this case, however, it may be that conditions are not to her liking as to thickness of comb, and separators may have something to do with it.

QUEENS GO READILY FROM ONE STORY TO ANOTHER.

On the other hand, I have had many cases in which queens have gone of their own accord into an added story above or below; and I think in every such instance they have continued to go back and forth, keeping up the brood in both stories. Friend Hatch says his queens will go into a second story; but, once there, they never go down again. When I first read that, I wondered just a little whether there might not be some chance for mistake somewhere; but I have great confidence in the man. It is possible that his different experience comes from different conditions. I wish he would tell us what kind of top and bottom bars he has, and how much space between them.

In my case, the top-bars were $1 \times \frac{3}{8}$, and the bottom-bars $\frac{3}{8} \times \frac{1}{4}$, with a full inch between them. The space between was filled with comb, so that really it wasn't so very different from a single story with frames of double depth.

SHALL THE BROOD NEST BE ENLARGED HORIZONTALLY OR VERTICALLY?

The question as to whether a queen will go back and forth from one story to another becomes one of importance to those who think as many as ten frames or more are needed during part or the whole of the year. I confess that I am at present inclined to enter the camp of such believers. Having handled extensively both ten-frame and eight-frame hives, the compactness of the latter, together with ease and convenience of handling, is such that I am loath to go back to the ten-frame hive.

If as good results can be obtained, or even if nearly as good results can be obtained by using two stories a part or the whole of the year, avoiding thereby the lifting of the heavier hives, then I want to hold on to the eight-framers. This will hold especially true with such as now have eight-frame hives exclusively, for a change to a larger size would mean a

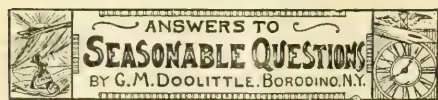
heavy expense; whereas the trial of two stories of a size already in use would cost comparatively nothing.

With my present light, if queens will be induced readily to occupy two stories, here's something like what seems desirable, only with two seasons of utter failure I know practically little more about it than I did two years ago: At the beginning of spring, give a story of combs below with some honey, so that there will be abundance of stores, and so that the queen can occupy as many frames as she likes of the sixteen. At the beginning of the honey-harvest, whether the whole sixteen frames shall be left, or whether the number be reduced to 12, 10, or to a single story, is a question on which I desire more light. In any case, at the close of the white-honey harvest two stories will be put or kept in use, remaining till perhaps October, when one story will be taken away till spring. If the hives were to remain on the summer stands there would be no need to take away one of the stories at any time of the year, unless thought advisable to do so during the harvest.

I am very much afraid, however, that, with such frames as I should like, and with the desirable absence of burr and brace combs, the queen would not readily go from one story to another. Possibly that might be remedied by some sort of ladder of comb from the first to the second story, so the queen could go from one to the other without setting her dainty feet down upon wood.

I shall read this article with much interest when I see it in print, but I shall skip all but the footnote. I shall also look with interest for the kindly criticisms of others, for I very well know that I'm talking on a subject about which I know very little, but desire light very much.

Marengo, Ill.



FEW UNFINISHED SECTIONS IN THE FALL.
HOW NOT TO HAVE THEM; BEES CLUSTER-
ING OUT; WHEN IT IS AND IS NOT A GOOD
SYMPTOM.

Question.—Nearly every fall I have half or more of my sections in the unfinished or uncapped state; and especially is this the case the present fall, when nearly two-thirds of them are unsalable on account of not being capped over. Will you please tell us in GLEANINGS how this may be obviated?

Answer.—How to manage our bees so as to secure the greatest yield of comb honey is a question of great importance to all those who are engaged in producing such honey for mar-

ket; hence we often have articles on this topic giving us instructions regarding it. But comb honey is of little value unless properly finished or capped over; so that the thing which our questioner puts before us of "how to manage our bees so as to have few uncapped sections in the fall" is a question of nearly as much importance to us as the one spoken of above, which has occupied the thoughts and writings of very many. For years I was troubled by having from one-fourth to one-half of the combs in the sections not fully sealed at the close of the honey-harvest, which were salable only at a reduced price, if at all; but of late I have but few of such, even in a poor season. After experimenting for a year or two regarding the matter, I became convinced that the cause of the trouble was in giving the bees too many sections; and especially conducive to this was the plan of tiering up sections late in the season. How often have I, years ago, spoiled a promise of an abundant yield of comb honey by tiering up four or five days before the honey-harvest closed! To tier up sections profitably requires considerable tact; and especially do we want a thorough knowledge of the honey resources of the field we occupy. I often think that there is too much injudicious talk in some of our papers in regard to not allowing the bees under any circumstances to cluster on the outside of the hive, the idea being generally conveyed that, when bees thus cluster out, they need more room. Now, it depends upon when this clustering-out occurs, whether more room is needed or not; and hence I say "injudicious talk." If the clustering-out occurs at the commencement, or in the height of the honey harvest, then more room should be given; while, if at the latter part of the harvest, or in a time of honey-dearth, no more room is needed; for more room at this time results in the one case in many unfinished sections, and in the other an absolute waste of time used in enlarging the hive. To illustrate: During some seasons we have but a few days of honey secretion, and that often after the flowers which produce the yield are rather past their prime. At such times we often do not have on the hive one-half of the capacity which we would use in a good season, and for this reason the bees begin to be crowded out. Hoping that the weather may be good during the rest of the time that the flowers are in bloom we give double the room to our colonies, only to have it turn bad weather again, thus giving us only partly filled sections in the fall; while, had we left them as they were, all would have been finished. Well do I remember one such season when, in time of basswood bloom, we had bad weather up to the middle of the bloom. At this time I had on each hive a surplus capacity of about twenty pounds, when all at once the yield of honey became abundant,

and the bees began to be crowded out. Hoping that the weather might be good for some time, I spread the sections on a few hives by placing some empty ones between those nearly full, giving at most only about 40 pounds capacity, while, when all is favorable, I use 60. The result was, that the bees immediately took possession of the empty sections, while the weather turned unfavorable again; and when the season was over I got no more than five to ten pounds of capped honey from these hives, while those not touched gave twenty pounds of nice capped honey. In this case the bad weather was the cause, for the spreading was not carried far enough to be unreasonable; but in former years I have been the cause of the trouble by spreading or tiering up but a few days before the honey-harvest closed.

Again, after the basswood bloom had fallen there came on a very hot spell when not a bit of honey was to be obtained; and the result was, that the fronts of the hives were black with bees. According to the advice above alluded to, I should have given more room; and if the bees then persisted in clustering out I should smoke each colony until they all went in and stayed there. Any one can see at a glance that this would be just a waste of time, as the bees were doing just as well for me by clustering on the outside of the hive as anywhere. But, to return:

My plan of operation to secure all capped sections at the close of the honey-harvest is as follows: When the bees show, by building bits of comb here and there about the hive, that they are securing honey from the fields, I put on sections to the amount of about 20 pounds, and leave them thus till the bees are well at work in them, when I add about 10 pounds more room by placing it at the sides of those first given them. When this room is full occupied, I give more room at the sides to about the same amount given before; and were I using the tiering-up plan, I should have my surplus-arrangements so arranged that, at this time, I could raise up about one-half of the sections already on, putting empty sections underneath them, instead of raising up the whole 30 pounds, thus giving them more room, a little at a time, as the bees have need. By the time the bees fully occupy the room last given at the sides, the first 20 pounds given them is ready to come off; and when this is taken off, the partly filled sections on either side are drawn together over the center of the brood-nest, and empty sections given at the sides again to the amount which I think they will need. Thus I keep taking off and putting on sections, taking the full ones from the middle, and putting the empty sections at the sides until the season begins to draw toward its close, when, as fast as full ones are taken from the center, the others are drawn up till

the space is contracted to the original 20-pound capacity, or even less if I think it necessary. In this way the bees are given all the space they really need, while the chance for many uncapped sections in the fall is quite small. By a little study the tiering-up plan can be made to conform to the above, and worked on the same principle. I think that any plan which requires the tiering-up of from 30 to 40 pounds capacity, or the spreading-out of the same number of pounds at one time, is faulty, and a wrong policy to adopt, while the giving of a medium amount of surplus room as needed seems to me to be a wise course to pursue.



HOW AND WHERE TO KEEP COMB AND EXTRACTED HONEY.

Ed. Gleanings:—Can you inform us, or some of your readers through the columns of GLEANINGS, the temperature that extracted honey can be raised to with safety so it will not regranulate again? also the proper temperature for keeping comb honey.

We notice that the sale and consumption of honey in comb is greatly reduced by honey being held in fluctuating and cold temperature; whereas, if kept in an even high temperature it would not chill nor granulate, and become premature old honey to all appearances.

We have spacious rooms that we use for cold storage of butter and eggs in the summer, and are now emptying them and contemplate heating those rooms to the proper temperature for comb honey. These rooms are so protected that they can hold any temperature, so they will not vary five degrees in six months.

We believe that will be a great benefit to the honey placed in our hands for sale, especially for such as comes to us before cold weather. We think one reason why honey sells best, and gives best satisfaction in the early part of the season, is because, in the later part of the season, it has been exposed to extreme changes in temperature, and it stiffens or granulates in the comb, and the consumer, buying such once, doesn't want it again. We do not know of a honey-dealer who keeps honey in a warm room, but generally in an open store, where the doors are not closed in many places in the coldest winter weather. We know of two hundred cases of honey that was carried over winter in that way, and is now unsalable except for bee-food. The holders say it came to them December last, and was granulated then, and would not sell. I should like to hear opinions on the practicability of furnishing an even high temperature for honey; and I think that, if

grocers and holders of honey come to realize that cold temperature injures honey, many of them will not keep their stock of honey in the coldest part of a store, and, in many cases, in their ice-boxes, under the false idea that honey must be kept cool.

H. R. WRIGHT.

Albany, N. Y., Sept. 21.

[Good extracted honey, if brought to a temperature of not over 180° Fahrenheit, bottled and sealed *while hot*, will usually, if kept in a uniformly warm temperature, keep liquid for a year or more. Indeed, we had some fine clover honey, treated in this way, keep liquid for two years. But there is a great difference in honey. Some will candy much quicker than others. The riper—that is, thicker—the honey is, the longer it will keep liquid.]

Cold atmosphere is quite favorable to candying of both extracted and comb.

The temperature of the storage-room should be about that of a living-room—70°. Higher would do no harm, but is inconvenient and expensive.

Cellars and cold rooms, especially when subject to freezing, are poor places for honey.

In melting candied extracted honey, the temperature should not go above 180°, otherwise the fine flavor will in a large measure be destroyed. The usual way is, to place the vessel of candied honey in another larger receptacle containing hot water.—Ed.]

THAT HIVE DISCUSSION — WHY IT SHOULD BE CONTINUED.

Last number of GLEANINGS is at hand, with intimation that the discussion concerning big and small hives ought to cease, because it is a matter of locality. I have also received a private letter from a prominent bee-keeper expressing the same opinion. Now, right here I want to enter the *very biggest* kind of a protest—that, precisely because it is a matter of locality, it ought be fully discussed. We ought to ascertain in what localities and for what kind of honey-flows large-sized brood-nests give the best results, and where and under what circumstances small brood-nests are best. Methods of managements are to be taken into consideration, as the management in any given case must vary with the kind of hive employed.

ADRIAN GETAZ.

Knoxville, Tenn., Sept. 20, 1895.

[As we have received a good many letters of similar import, and only one protest against the hive discussion, we will hold our columns open for a while longer. The question, I think, is indeed an important one, and personally I should be very sorry to have it stopped now—just on the eve of getting, as I think, a few more pointers and a better understanding of what *locality* has to do with it.—Ed.]

THAT HIVE DISCUSSION.

Keep up the discussion about the size of hives. I have tried from one up to twenty frames, and prefer ten to either more or less. I may tell you the reason why, later, if you care to know.

West Lodi, O., Sept. 5.

JAS. BOLIN.

[Yes, by all means let us know.—Ed.]

THAT NICE HONEY OF YORK'S; IS IT FROM THE ROSE OF SHARON?

In reading GLEANINGS for Aug. 15, page 637, I see that you have had a visit from Mr. York; and the description of his honey exactly answers mine; and as I had been trying my best to find out its source, I thought I would write you to say that the only possible source seemed to be the "rose of Sharon." My apiary (three hives) in our place is in a well-built-up town; but as the rose of Sharon is a pretty flower, nearly every yard has one or two trees of it.

If the tree named grows in near Chicago, Mr. York will undoubtedly find it the source of his honey. Perhaps I should mention that there are two kinds of the flower—the single and double; and while I could never find a single honey-bee on the single-flowered bushes, they fairly swarmed on the double, both red and white. The honey I have looks almost black in the comb; but when held up to the light it looks quite light.

Have taken 50 lbs. of comb honey from my hives this year, 2 colonies spring count, the most of it being this rose of Sharon, and the rest about 15 lbs., being basswood. Fall flowers are in full bloom, giving plenty for winter, and perhaps a little surplus.

E. LOIZEAUX.

Plainfield, N. J., Sept. 10.

[I don't know whether Mr. York has the rose of Sharon in the vicinity of his bees or not. The only way to prove whether the honeys are one and the same is to exchange samples.—Ed.]

SQUARE IRON TANKS OF LARGE CAPACITY FOR HONEY-STORAGE IN AUSTRALIA.

A few months ago I read some articles in GLEANINGS about the fitness or otherwise of galvanized-iron tanks for storing honey, such tanks being principally used in California by large honey-producers; but I haven't seen anybody recommending the tanks I use. The tanks I have for honey-storing are square iron tanks, made of stout iron plates, the seams closely riveted, very strong, and painted red outside. These tanks are used on board ships for holding water, and are also sent out to Australia filled with groceries, but principally with malt for the breweries. They hold 200 to 400 imperial gallons, equal to 3000 and 6000 pounds of honey.

I have at present eleven of those tanks in use—six of 6000 capacity, and five of 3000; three of them for over eight years in use, and they give every satisfaction. Some have had honey in them for 3 or 4 years. Before using I clean them well, and wax inside.

FL. PETERSEN.

Wattle Flat, N. S. W., Australia, July 25.

[If I understand you, these tanks are of plain iron—i. e., ungalvanized. Such tanks, especially if waxed inside, would no doubt give good service; but they would be rather expensive. Plain iron, if painted on the outside, would be just as good, and perhaps better, than the zinc-

coated metal. Honey, when in actual contact with iron, is an excellent rust preventive, and it is possible such tanks as you describe, and not coated with wax inside, would do very well.—ED.]

STAMPED NUMBER-TAGS FOR HIVES.

To those who want a hive-number, and are not afraid to pay for a good article, I will say any stamp-works can furnish you brass checks, $1\frac{1}{2}$ to 2 in. in diameter, $\frac{3}{8}$ thick, with number stamped on, and a hole to put a screw through. These will last 100 years, and then be good for 100 years more. Drive a brad in the front of the hive to hang them on. I use them. Cost is nominal. F. H. RICHARDSON.

LaCleda, Mo., Sept. 3.



W. J. C., Okla.—Bees will work on a ripe watermelon that has been broken. During a scarcity of honey they are quite apt to take any broken fruit while the juice is running. They would not gather enough in any case from a watermelon to do any perceptible harm to the winter stores.

H. M. S., O.—Years ago, as you may have noticed in the A B C book, we lost quite heavily, owing to the fact that the honey made from cider killed the bees during the winter. A safer way would be for you to extract all the cider honey, and feed sugar syrup. The cider mixture may be given them next spring, when it will do no harm.

J. B., Va.—If you have difficulty in finding your queens, use queen entrance-guards, illustrated and described on page 11 of our catalog. Attach one in front of the hive, and shake all the bees down at the entrance. As the bees pass in, watch for the queen. She will be barred out by the zinc, and can be easily caught. This plan is often used in finding black queens; and if you have defective eyesight it is one that you could probably use to good advantage.

W. W., S. C.—We usually advise bee-keepers to stay where they are. Bees do pretty well in almost any locality of the United States. California (at least the southern part of it) stands at the head; then comes Colorado, Arizona, Florida, New York, and Pennsylvania. But certain portions of the States named are barren of honey. If you have any particular locality in view you had better write to some person at the postoffice, and learn whether bees are kept; and, if so, whether they pay.

G. R., Ky.—It all depends upon the season of the year as to how soon the black bees will disappear after the introduction of an Italian

queen. Forty-five days might be long enough during the busy part of the summer; but I should expect to find a few back fellows in the hive all summer. If the queen be introduced in the fall, you will likely find black bees in the hive all through the following spring. As to how to Italianize, we would refer you to first column of page 32 of our catalog, third paragraph; or, better, the A B C of Bee Culture.

HANS MOURNS THE LOSS OF HIS BEES.

I haf much truble mit mine bees,
Dey haf dis vinter most all freeze;
Dey gets all ofer froze,
From der het down to der toes;
Und I say, "Hans,
You know yust how der muneey goes,
Ven you py some more bees."
Oh my! I veel so very sad;
Dis vinter use mine bees so bad.
I denk I take der rest
To pet mit me
Und cuver dem yup mit der close
To keeps dem from geding any more froze.
Mine vife Beky says she yust knows
Der bees no like to be shut up mit der close.
I denk, "Hans, you nose not
Vot you bees apout,
Or you deach does bees
Rite away to eat some krout,"
Den, oh my! you smell dot hunyes
Yust forty miles away.
I yust vait und see
Vat mine vife Beky haf to say.
Mine vife Beky say I make someding out.
Ve yust shweep dot room and clean it oud,
Und bring in does bees,
Und dot barrel of krout,
Und does bees makes honeys
All de vinter oud.
Dot vife Beky she bees so smart
I yust lofe her mit all mine hart.
Ven we bring does bees in,
Von dakes mine vife on der chin.
I say, "You look a liddle oud,"
Ven von sthicks her on der shnout.
She runs to dot barrel of krout—
Dot dakes der pain already oud;
I haf no dout does liddle bees
Yust would like some limberger cheese.
I see all does big bee mons
Gifes problems to make oud;
Und I yust gife dot problem
Apout der bees und krout.
Dey can yust tole me
If dot hunyes don't bee so very fine
I denk I ot to no dot,
Ven I eats him all der time.
I denk if does bee mons
Solf dot problem oud
Apout mine bees und krout,
Dey will hafe to sharpen der prain,
Und shweep the cobwebs oud;
But I bees so happy,
Und ven I dakes der hunyes oud
I can yust smell
It bees flavored up mit krout.
I feed mine bees limberger cheese und krout,
I denk I peets all der bee mons
Geding der hunyes oud.
Der bees none flafared so nice as mine,
I denk it bees so very fine.
Ah, Hans, old poy, you bees smart;
Of does bee mons you gets der sthart;
I yust lofes dot hunyes mit all my hart.
Vots der madder mit dot Rambler?
He says such funy dings,
He no likes the vimens—
Dey bees angles
Mit der liddle vings;
I denk if he bees a noin,
Der liddle wings dey bees a groin'.

HANS VONDERBLINKEN.



We are uniting, and shall begin to feed this week.

So many have asked to have the hive discussion continued, and as only one votes against it, we decide that it is the wish of our readers to compare notes along this line a little further.

THE usual article from Rambler, owing to a misconnection, will have to be omitted from this number. His "Echoes," however, is a good substitute. The series will be resumed in our next.

I HOPE that committee appointed by the last convention in Toronto, to formulate a plan or a basis of consolidation of the North American and the Bee-keepers' Union, will be ready to report soon. Let's see; this report was to be forthcoming within a month; and that time will be up now in a few days.

GLEANINGS from now on till Jan., 1897, to new subscribers, for the price of one subscription—\$1.00; or four-months' trial subscription for 25c. A large number of extra copies are printed for this number; and if you happen to be one of the new acquaintances, we hope such acquaintance may be continued.

THAT half the California honey is adulterated (see article by C. W. Dayton, in this issue), is a condition of affairs that I can not believe is true; and if not true, I'd like to see it disproven at once before it finds wings and flies like wild-fire all over the country. The bee-keeping interests have suffered already fearful damage by false reports. Now, ye Californians, let's have the truth; and if you can not give us facts, give us honest expressions.

A BEE-KEEPER so well and favorably known through the frame bearing his name, Julius Hoffman, of Canajoharie, N. Y., and whom I visited on my first bicycle-tour, has recently lost a little five-year-old girl, "the pet and sunshine of the home." The home seemed dreary and sad after this loss; but the cup of sorrow was not full yet; for, on the 2d of September, the eldest son was taken away. GLEANINGS extends its sympathies.

WE receive about this time of the year a good many specimens of honey-plants for identification. Some of them we can name, but many of them we can not, owing to the fact that the plants are dried and often badly mutilated. We formerly, at some expense, employed a botanist to name all such specimens, through these columns; but beyond the satis-

faction to the one furnishing the specimen in knowing the name, there was but little interest in it, and the Botanical Department was discontinued. If you forward specimens to your State Botanist at the capital, or wherever the agricultural college is, he will give you the name and other information regarding the plant, free of cost. If you have no such botanist, write to us and we will do the best we can; but be sure to send fresh specimens in as full bloom as possible, and see that they are properly packed so as not to receive damage in the mails.

NEW METHODS VS. OLD.

THE editor of the *Progressive Bee-keeper*, in commenting on the fact that we had gone back to the old-fashioned method of raising queens, has this to say:

I too find it more pleasant and profitable to rear queens (in fact, do a great many things) the way I first learned how. I never form nuclei until after the queen-cells have been built in full colonies, and I proceed as follows: I select strong colonies, and take the queen and all the brood from them. In place of these I give them a frame containing eggs from my breeding-queen, in which they will build queen-cells. When the cells are capped over, I transplant them to eight—all but the two outside frames—and leave all alone for a day or so, when the bees will have them all glued fast to the combs. Should there be more than eight cells, I destroy the poorest ones. Should there not be eight cells, I use them in the manner stated above as far as they will go. When all is ready I divide up this colony into as many nuclei as I have frames with cells attached, and add to each nucleus a frame of brood from some other part of the apiary. This method may not be scientific, and it may be a slow and expensive way to get queens; but I am sure I get good queens this way, and with me the above is the "good old way."

FEEDING SUGAR AND COLD WATER; IS PERCOLATION NECESSARY?

NEIGHBOR VERNON BURT fed his bees this year with sugar and cold water of equal proportions, without resorting to percolation. Of course, the sugar did not all dissolve before the first feed was taken; but more water was added at the next round, until it was all taken up. It is possible that this plan will answer very well providing the bees are fed early, or not later than October 15, for this locality.

MR. F. A. Salisbury, of Syracuse, N. Y., has for years fed his bees with a food prepared by mixing equal parts of sugar and water in an ordinary extractor, the reel of which is revolved until the sugar is incorporated into the water. We have tried this, but could not succeed in making a clear syrup—much of the sugar would still remain undissolved, and we accordingly used the percolator plan last fall. I am now beginning to feel, however, that a perfect union of the water and sugar, so that a clear limpid syrup is the result, may not be essential; that a mixture of sugar and water, even though

the former is not all dissolved when fed early enough for the bees to ripen it, may answer just as well. If this is true, it is not necessary to go to the expense and bother of using artificial heat and more or less elaborate melting-tanks.

Last year we proved, to my satisfaction at least, that syrup made by the percolating process was just as good as that made by the use of artificial heat, and far more convenient to make and feed.

As a caution, I want to say again that, for *late* feeding, or when the nights are cold enough to make the clusters contract up, it probably will not be safe to feed this half-and-half cold mixture; old-fashioned thick syrup—two-thirds sugar and one-third water, thoroughly mixed in a melting-tank over fire, should be given.

It occurs to me that, having mentioned the percolator feeders, I ought to describe briefly the one we used last fall, for the benefit of new subscribers. Into a one or two gallon crock put by measure an equal quantity of sugar and water; be sure the crock is level full. Over said crock lay three or four thicknesses of cheese-cloth, and on top of this a large dinner or pie plate. Invert the whole, set it in the upper story of a hive, and it is ready for business. Sapp-pails, without bails, and cleated boards in lieu of plates, may be used, and, on a smaller scale, a saucer and common tumbler.

Later.—Since writing the foregoing I have had a talk with our apiarist. He doesn't feel so hopeful that the mixing of sugar and cold water, without running it through a percolator, will do. At all events, the sugar-and-water mixture doesn't seem to be accepted very readily from the Miller feeder. The trouble is, the sugar settles to the bottom, and the thin watery portion rises to the top, where the bees are, and is so thin, indeed, that they do not take to it. In the case of the *crocks* and plate, above mentioned, the bees work at the *bottom* near the sugar, or where the syrup is the thickest.

OUR LATEST PERCOLATOR FEEDER.

We are now using, with great satisfaction, cleated boards with a three-inch auger-hole in the center, in place of the plates. The crocks are filled half and half, as previously explained; the flannel or cheese-cloth is then laid over, after which the cleated board with the orifice in the center. The whole is reversed, and the percolated syrup is taken by the bees at the opening in the center of the board now under the crock. We prefer this arrangement because the bees take the feed faster.

If you wish to know how to make a large percolator—one that will give you a half-barrel of syrup in a few hours—see GLEANINGS for October 15, last year, page 804. If you do not have the copy, we can send you one for 5 cents. Of course, these large percolators are used only

for making syrup indoors, the syrup being fed in the regular way in ordinary feeders.

DEATH OF DR. C. V. RILEY.

THAT distinguished scientist, Prof. C. V. Riley, who, till recently, held the position of United States Entomologist, which he resigned but a short time ago, died on the 14th of last month as the result of a fractured skull from a bicycle fall. In his special department of science (entomology) he seemed to be without a peer. In his official capacity he rendered important aid to the farmer, and especially to the fruit-grower, by discovering ways and means for the destruction of insect-pests. From the last *Scientific American* I take the following:

In the past few years, two of his studies have produced epoch-making results. One is his famous emulsion of kerosene oil, milk or soap solution being the emulsifying agent. Having found that this was an infallible insecticide, he had to devise means for applying it, and invented the "cyclone," "eddy chamber," or "Riley system" of nozzle for spraying it upon trees. Another of his achievements was the introduction of the Australian ladybird, *Vedalia Cardinalis*, into California, to destroy the white scale, which was then ruining the orange-groves. The result was simply magical. Since then the insect has been introduced elsewhere. It is interesting to note that other attempts of the same sort that have been made in California, against other insects, either against his advice or without his endorsement, have not had the same success. His discoveries in relation to the phylloxera alone were enough to give him international renown, and his recommendations have been followed by grape-growers in all parts of the world. He was a most voluminous writer; a bibliography of his writings, published by the Department of Agriculture, five years ago, showing over 15,000 titles.

Prof. Riley honored by his presence the North American convention which was held during the winter of 1892, '93, at Washington, D. C. At that time he read a paper which was listened to with marked attention and interest. In this he pointed out what the government had done and proposed to do for the bee-keeping interests of our country. Both he and Prof. Wiley, then Chief Chemist of the Department of Agriculture, created a pleasant and lasting impression on the bee-keepers who were fortunate enough to be in attendance upon that convention.

GOD'S LATEST GIFT TO A. I. ROOT AND WIFE.

On the anniversary of their 34th wedding-day, at half-past nine on Sunday evening, Sept. 29, 1895, was born to their eldest daughter, Mrs. Maude Root Calvert, a little girl, giving them a granddaughter in addition to the grandsons, Howard and Leland. May God give grace and wisdom to both parents and grandparents to bring up the precious charge in wisdom's ways!



ON THE WHEEL, AMONG THE POTATO-GROWERS.

September 14 I opened my eyes in a pleasant little room in the home of my cousin, D. E. Fenn, of Tallmadge, O. The first thing was to get my drink of hot water. Then my cousin and I took a seat in his easy buggy (for he is somewhat of an invalid too), and we rode around his potato-field. Perhaps the soil in the vicinity of Tallmadge, Summit Co., O., is the ideal potato ground—a loam partly of clay, with just enough sand and gravel to make it just right after it has been supplied with humus and the requisite fertility. The field in question was, in the spring, a heavy growth of clover; but, clover seed being scarce, the seed sown was from some distant point; and all at once cousin Fenn became aware that a weed he knew by reputation years ago, but had not seen for some time, was coming up thick all through his clover, and just getting ready to blossom. The only way to rid the farm of it entirely was to turn it all deep under ground—clover, weeds, and all. Even the clover was just coming into bloom. His sturdy German hired man did the job complete, plowing deep, and then working the ground up till it was fine and mellow. I think it was late in June when the potatoes were planted—Monroe Seedlings and four barrels of the new Craig Seedling, the latter furnished by your humble servant. The potatoes were well cared for, and they were a sight to behold, especially when contrasted with the field of a neighbor over the fence who “farmed it” in the good old-fashioned way. And, by the way, there would not have been any bugs of any account on that field of about 20 acres had not this same neighbor kept supplying a reinforcement from his own field. The hired man had picked them off on the side of the potato-patch as fast as they got over and through the fence. While cousin Fenn’s Craig Seedlings are making a good show, they do not compare with the two acres at the Home of the Honey-bees. We got back just in time for my beefsteak. You see, I manage to find it when mealtime comes around, no matter where I am.

After breakfast the wheel and I lighted out for cousin Wilbur’s, a son of D. E. Fenn. He was milking the cows, so I talked with the children till he had finished. By the way, before I reached the house I climbed over the fence so as to walk through—no. I did not *walk* through, because it would have been too much work; but I rode my wheel alongside of the handsomest-looking field of potatoes I think I ever saw in my life. Now, hold on a bit. There was not a longer and stronger growth than on my own Craig Seedlings at home—no, not as much; but the foliage was all young, thrifty, and of that light, tender, dazzling green that reminds one of springtime. You will remember I told you that, on the 4th of July, I saw a hundred bushels of Monroe Seedlings piled up in his cellar, almost as hard and firm as they were when dug. Well, on the 5th of July he planted several acres of these potatoes. They came right up; and, as if realizing that time was precious, they just put in their best ticks. The flea-beetles had gone, and there was not any neighbor near by who had potatoes the old-fashioned way, so there were not any Colorado bugs to bother them. Every leaf was clean and perfect—no perforations, no mutilation by insects of any sort. But the vines were knee-

high, and just about covered the ground; in fact, he had decided not to cultivate them any more, as the horses did so much damage tramping the vines.

“Cousin Wilbur, have you ever planted potatoes by the acre as late as this before?”

“Only once. Then I planted them the 6th of July instead of the 5th; and I got them into the cellar all right, without injury from frost, other than that the tops were killed before they had done growing; but the potatoes kept over winter all the better, and kept through until July again all the better.”

He did not plant all of that 100 bushels, for good eating potatoes were scarce and high during the fore part of July, and he sold them for table use rather than plant them. His Craigs were planted much earlier, because they need a long season in which to reach maturity. His acre of Craigs looked about like his father’s.

I told the friends I must hurry off, as I expected to visit Terry, then Chamberlain, then go to Cleveland, call on my doctor, and reach home before night. My good friends thought it seemed almost incredible that I, a sick man, should undertake so much in a single day.

Ten miles or more on the wheel, and I ran right down into the lot where Terry himself was digging his Freemans with the potato-digger. Three men were picking them up; and his son was kept rather busy looking after the empty boxes, loading up the filled ones, and keeping the whole work going on without any hitch. I remembered my experience, given in the A B C of Potato Culture, in bothering a man when he is running a potato-digger, and a gang of men who were getting them up and moving them into the cellar at the same time. Terry’s potatoes were ripe, and the vines dead. You see, he works with a comparatively early potato like the Freeman, New Queen, and others, that he may get in wheat, after the potatoes. There has been some complaint about the Freemans being small. They were not small on Terry’s ground, I can tell you, even though he has in his locality suffered from the drouth almost as badly as anybody. His potatoes were all of nice shape—clean and handsome. It was time for my hot water, and I begged to be allowed to go into the kitchen. A steaming tea-kettle stood right on the stove, and I was permitted to help myself. Friend Terry explained to his wife that I was on a hot-water “diet.”

“Why! But, Mr. Root, you don’t *live* on hot water and *nothing else*?”

“Oh, no! But I do live on hot water and beefsteak.”

“Well, we have plenty of hot water; but, dear me! where are we going to get beefsteak for your dinner, out here in the country?”

I laughingly explained to them my program for the day, and said that it was already time for me to be off. I rather expected that I should find them in the field, digging potatoes;

* After selling out all our potatoes I looked over our cellars and discovered a few odds and ends on the 12th day of July last. There was also about a peck of Craig Seedlings kept for possible tardy customers. A piece of ground where early peas had been taken off was selected, and potatoes planted on the 12th of July, and now the vines almost cover the ground. There certainly will be a tolerably fair crop. Years ago I used to try this late planting, and fail every time. I can not understand why Wilbur and I succeed just now unless it is because of the abundant fall rains and late warm weather we have been having for the last two or three years; or possibly we are learning how, and have got our ground in better shape for fall potatoes. But I tell you it is fun to see them growing, and making great tubers so rapidly during the cool pleasant days of the latter part of September.

and my half-hour's visit had abundantly satisfied me for making the trip. At just about my usual mealtime I stood before the landlord of the hotel at Hudson, O., and explained as follows:

"My good friend, I am under the doctor's care, and eat nothing but lean beefsteak. I am going to make you some trouble, but I am perfectly able and willing to pay you for it all. If you haven't it in the house, please get me from the meat-market a full pound of their best tenderloin steak. Have the butcher trim off every bit of fat, muscle, and bone, and pay him his price, then have it nicely broiled, not overdone, and call me to dinner. I shall probably be asleep on this lounge here in this sitting-room."

In less than an hour I was refreshed by sleep and an excellent meal of pure beef. When I went to pay my bill, the landlord said it was only 25 cts.

"Why, my good friend, 25 cts. won't pay for the meat I have eaten, let alone your time and bother."

"Well, our price is 25 cts. to everybody, and I don't see how we could charge you any more."

Now, friends, when you say the world is all bad, and when people make special strictures in regard to landlords and hotels, please remember there are exceptions. I had hard work to get this man to take more than the regular price, even after I had explained that I called for something outside of the regular line, and that I proposed in the commencement to pay extra for just what I wanted.

In a little time more the wheel landed me at the pretty home of W. I. Chamberlain, who carries on his farm as a sort of experiment station for the *Ohio Farmer*, of which he is one of the associate editors. He has about 36 acres in potatoes of different varieties. The field is so large I thought it quite convenient to take my wheel along while we made investigations. Besides he has a nice good wagon-road along by the side of it. We examined and tested more kinds than I can remember now. But the best of all, with his ground and his management, was the Sir William. It is a rather late potato, like the Craig and the Rural New-Yorker.

Perhaps I should mention that I found friend Chamberlain and his good wife at the dinner-table. As my time was so limited I was permitted to sit down to the table with them so we could talk meanwhile. They had the Sir Williams for dinner, and, of course, they were beauties. The way they cracked open and rolled out like popping corn, exhibiting their floury contents, was enough to make anybody's mouth water, let alone one who had not tasted a potato or any other vegetable for more than six weeks. Of course, the talk was about potatoes. In the midst of it, friend Chamberlain jumped up like a schoolboy and lugged in a basket containing some that were not used for the noonday meal. Something has given me a wonderful love for every thing in the line of potatoes during the past few weeks. Probably it is because I can not have any. But the doctor promises to reward me now before many weeks. Well, friend Chamberlain took along his spading-fork, and we dug into ever so many hills all over the field. The Sir William is certainly ahead of all others in yield. The potatoes were nearly all large—a large, long, white, handsome potato—almost no small ones at all. The Rural New-Yorker, that ran right along beside them, seems to come next to the Sir William.

Before I was half through, my watch reminded me that I should have to make time

and let the Rambler "ramble" indeed, or I could not reach my station, seven miles away, in time for the 2:10 train. The road was pretty fair; but as I neared Peninsula it was very much up hill and down. I imagined I could hear the whistle of the coming train; and we (the wheel and I) plunged down some fearful long steep hills in a way that reminded me of those of the Ozark Mountains a year ago. I reached the station, full of life and spirits, just a few minutes before the train. A brother-wheel-man came close on my heels.

I reached the doctor's office in Cleveland just before the closing-time Saturday night. Several patients were ahead; but after we had become acquainted a little in the waiting-room, those who could, kindly gave way for me.

"Doctor, I think it a little ridiculous to call a man sick who can eat a pound of beefsteak three times a day, and ride twenty or thirty miles over the hilliest roads in Northern Ohio. Hadn't you better turn me off and let me go?"

After making some examinations he replied:

"Well, you are doing tiptop. You need not have any more *ground* meat unless you choose; but it seems to me that lean meat, and nothing else—that is, if you will be guided by me—is what you need just a little while longer. Yes, you are getting thin in flesh, that is true; but that won't do you any harm. If you should come down to 100 pounds, instead of your present 115, it would not hurt you a bit. It is not the number of pounds that a man weighs that counts, so much as it is the stuff he is made of, what there is of it."

I was at home Saturday night just a little after sundown, and not tired out either, from my big day's work. In fact, I had been so full of enjoyment that I felt more like having another trip just like it than any thing else. But I slept a solid hour and a half as soon as I had finished my supper. Pure, wholesome food, regular hours, pure water to drink, rest whenever it seems to be needed—are they not the three great essentials to life, health, and happiness?

FLORIDA TRAVELS.

From Lake Helen, on my return trip I passed back again through New Smyrna, clear around to Palatka, making a brief call on our good friend Aug. Leyvraz, at Francis postoffice. In this locality there has been rather a setback of late years. Land right around the station at Francis depot was worth \$50 an acre ten years ago; but at the time of my visit the whole tract had been sold to a party at \$6.00 an acre, and the proprietor was busy clearing up the ground, and planting Niagara grapes. One peculiarity of the way they do things in Florida—yes, and California too—is to launch out in a new enterprise by planting acres and vines by the thousand. I could not learn that anybody had made a success of Niagara grapes right in that locality; but in some places in Florida the Niagara grapes had been sent into northern markets out of season, and had brought 30 or 40 cents a pound. I should start a *quarter* of an acre; and if that succeeded I would increase the acreage, and so on, feeling my way as I enlarged. It may be urged that life is too short for this slow process; but I think life is too short to take so many chances, and shipwreck a man even before he owns any thing, comparatively.

Toward sundown on the same day I was landed in the beautiful town of Ocala; and, in fact, it is one of the handsomest and most business-like places I found in Florida. Just as I stepped off the train, a neat-looking schoolboy about twelve years of age (he attracted my at-

tention because he was about the age and height of Huber) accosted me very respectfully:

"Mister, would you like a place to stay over night?"

"Why, my young friend, that is just what I should like. Are you a runner for some hotel?"

"No, I am not a runner, but I can furnish you a nice bed for 25 cents."

"Are you sure the bed will be clean, and that there will be plenty of windows so I can have lots of fresh air for the low sum of 25 cts.?"

"I think the bed and the room will be all right, because my mother takes care of it. And if you should want a good supper for 25 cents, my pa will furnish it to you right over there."

I got a good supper, and I talked with the "pa" and the boy. The railway dining-stand kept by said "pa" was close to the depot, on expensive ground; but the home-like sleeping-room was off a little way were property was less valuable. Now, while so many people are saying (and a great many say it in Florida) that there is no way to make a living, I would commend the example of this father, mother, and child. While the father looks after the dining-room, his boy meets passengers as they step off the train; and the mother in the home, a little way off, provides pleasant, wholesome sleeping-rooms for the great traveling public.

There is a railway from Ocala to the renowned Silver Spring; but it runs trains only one trip a day, and I could not wait, so I chose the more expensive way of going over in a carriage. Just now I feel incompetent to do Silver Spring justice. Here is a spring that pours forth a volume of water sufficient, in one spot, to float a steamer; in fact, it forms the Ocklawaha River. You can stand on the platform at the side of the spring, and look down into the immense crater nearly a hundred feet. The water seems to have something supernatural about it. There is a dazzling crystal transparency that enables you to see even small objects perhaps plainer than you would in the air. A colored man took me in a boat, and pushed out so quietly that there was scarcely a ripple on the glassy surface. He named the different springs as we passed over them, while in breathless wonder I leaned over the boat with my face close to the water. Pretty soon he announced "Ladies' Pahlah," meaning that the enchanting picture in the depths below was named the "Ladies' Parlor." In the first place, there was a sparkling sandy bottom. This sand, owing to the deposition of chemicals, I suppose, glittered with all the colors of the rainbow. Then there were sea-mosses, and vegetation after the manner of beautiful ferns. This vegetation was also decked with rainbow hues. Some of it was like flaxen hair floating in the many currents of rushing waters as they poured forth from the dark depths opening here and there. Beautiful fish slowly and gracefully moved here and there through the avenues and luxuriant vegetation of this enchanted garden. It seemed to me as though I could stay there for hours; but the guide could not spend very much time for 25 cents—at least he thought so. I finally gave him an additional quarter to push up a little way along that wonderful river, down where two steamers come every day.

The trip by steamer from Palatka to Silver Spring, if I remember correctly, is about \$10, or \$6.00 one way. My ticket was already purchased, however, by rail, at a very much lower price, and so I did not take the river trip. The latter also occupied a great deal more time. A lady who came down in the boat said there was not much opportunity for sleep, because the boats were almost every minute crashing

through the tropical foliage along the river-banks. Of course, they might trim it off; but vegetation grows so fast under the stimulus of the sulphurous spring water that it would probably be a task to keep the whole river trimmed up.

After my colored guide had taken me back I understood that he slipped out of showing me one of the most important springs, even though I had given him double pay. Let me remind the managers of these pleasure-resorts that this sort of lazy trickery advertises their places adversely, more than thousands of printed circulars could boom them. Niagara Falls people will please take notice. Dishonesty and cheat do not pay anywhere. It is just as true now as it ever was, that honesty is the best policy.

Silver Spring and the Ocklawaha River are indeed a most beautiful sight, and an electric railway should by all manner of means run to Ocala and back again. Pulling great lumbering stage-coaches through the deep sand on a hot dusty road is a shame and disgrace to the present age.

One more visit, and my invitations to beekeepers were all finished. Frederic Adams, Green Cove Springs, is a migratory—not beekeeper, but tinsmith. He gives us another illustration of what a man may do to support and bring up a family if he has the grit. He has a complete tinsmith's outfit loaded into a wagon, and he goes twice a week all through the town of Green Cove Springs, soliciting orders. He is prepared to do any thing from mending a five cent tin cup to putting a tin roof on a \$5000 hotel. When he gets a job of the latter kind, I presume he employs some help. I urged that he should have a shop in town. He has a running spring large enough to carry a water wheel and turning-lath. He goes out about his work at odd times, or a certain part of the week, then takes care of his grounds and home between times.

With the help of his son Frederic, and the assistance of the mayor, we finally alighted upon the father, with his wagon and tinner's tools. During my short stay we had a most agreeable visit, and drove up to the beautiful Magnolia Springs, where one of the great Florida hotels is located. Green Cove Springs is another of the beautiful springs in Florida. The water, however, is of a somewhat greenish tint. It is sulphur water, and too warm to be agreeable to most persons. But even after what I have said in regard to the enchanting beauty of these wonderful springs, scattered, it would seem, throughout almost all the United States by the hand of Providence, I want to say that Green Cove Spring in itself has a special claim above them all. It is right out in the open day—in a little park, as it were, in the midst of the town. The basin is perhaps 50 feet across. The depth may be 30 or 40 feet; and the whole bottom is literally paved with the whitest and most brilliant sand that Florida or any other clime ever produced. The water is of such sparkling clearness, and crystal brilliancy, that it brings forth an involuntary exclamation of delight from every visitor who first sets eyes upon it. I suppose my expressions were something like this:

"Dear me! is it really possible that this is a reality and not an enchantment? Did you ever! Did *anybody* ever see or dream of any thing so enchantingly fascinating? These waters must surely be as beautiful and refreshing and invigorating to the taste as they are to the eye."

Then I sprang for one of the bright new tin dippers. Others were drinking the water, and I supposed it must be good, the way they smack-

ed their lips. It is really too bad to find fault, after all I have said; but the water was too warm to be refreshing; in fact, it tasted like the time-honored dishwater; and then I had just recovered from a fit of sickness, possibly caused by drinking from sulphur springs, and I knew it would not answer at all. I am told, however, that, like other sulphur waters, when exposed to the air, and then cooled with ice, it is very palatable. I never thought, at the time, to try any of the Florida waters after boiling. As I write, however, I feel pretty sure I could drink them hot after a sufficient lapse of time after my regular meals.

Before I bade friend Adams good-bye I had quite a little confidential talk with him; and his closing remarks still come up in my memory together with the memory of that beautiful Green Cove Spring, only more refreshing. As nearly I can remember, he said something like this:

"Mr. Root, I especially wished to have you make me a visit. I am not much of a bee-keeper now. In fact, I do not take GLEANINGS because of what it has to say on bee culture. There is something else that interests me. For many long years I have been in the habit of reading my Bible more or less every day. For a good many years I did it from a sense of duty, and not because I was particularly interested in it. I want to tell you now, however, that, for several years back, the Bible has been growing more precious to me every day. Now it is a joy and pleasure to make it my daily reading. I love it because I believe it is God's message to his children, and I am trying to bring up my motherless boy and girl in the fear of the Lord."

As he gave my hand a parting pressure and wished me Godspeed, I recalled to mind that, during the afternoon, when we were hunting for the father, I had enjoyed having a very earnest talk with the younger Frederic; and he almost gave me his promise to commence then and there, from that day forward, to seek the kingdom of God, and his righteousness. May God's blessing, and may the Holy Spirit, finish the work that I in weakness had only just begun.

OUR HOMES.

And he shall turn the heart of the fathers to the children, and the heart of the children to their fathers.—MALACHI 4:6.

ALMOST A MAN.

A few days ago I was much moved by reading a little book by Dr. Mary Wood Allen, entitled, "Almost a Man." Its line of thought was a little different from the one I am going to talk about to-day; but still it set me to thinking of the boys around us and in our homes, who are *almost* men, and of the girls who are *almost* women. It set me to thinking that a good many times even their own fathers and mothers hardly realize that the children are children no longer, but almost men and women. It was only yesterday, in the busy part of the day, when letters were being passed about the office from one to the other, that the following touching appeal was all at once held before my face:

Dear Brother Root:—While I was at the State Fair my son, X. Y. Z., ran away in a most unfortunate manner. I send you the letter he left. As a truthful explanation of our relations, he never took any interest in our business; had learned to drink, use tobacco, and gamble, and I could not help keeping up a never-ceasing protest. He has many good qualities, and I can not abandon him.

I want him to return at once to his duty. Write to him, and help me save my darling son. A. B. C.

I read it over; and I hope that the dear friend whose name appears at the bottom will forgive me for deciding, before I had gone further, that he was at least *somewhat* to blame. Before discussing this further, however, let us consider the letter inclosed with the above:

Father:—I am about to do something that I dread the worst of any thing I ever attempted. I can not keep the tears back when I think of leaving the dear old home; but I am afraid we are so poorly calculated to live together, that it is not advisable for us to try it any further. I do not blame you altogether. I know I have often done wrong myself; and we both being wrong is what caused the trouble. I do not despise you now (as you may think); I wish you the greatest possible success, and hope you may get yourself into circumstances where you will be a great deal happier than you ever were with me.

I may have done wrong in taking as much with me as I did; but it seems to me as though I deserve some consideration, as I do not expect to get any thing after I leave this time. I fully appreciate what you say about the chance a person has who goes out in the world alone now, and I should think you would be willing for me to have something for a little start at least. I intend to go out to work, and save my money and hunt up a good location, and get into bees as soon as possible.

I do not like the *backward* way I have taken in getting away. It makes me sick when I think of it, and I am *very* sorry now I ever did it this way; but it is too late now. Somehow I thought it was the only way.

Father, I will tell you where the key to our trouble is. It is in the fact of my being of a *naturally unsocial nature*; but I don't think I am to blame for that. I think if I am out among people, and on my own resources, it will benefit me in that line. The reason I am not going to bid the folks good-by is because I know that, at the word, I should lose all control of myself. It is bad enough to leave the way I will, to think of leaving all the neighbors and friends. I have to grit my teeth and turn the subject from my mind. I do not expect to have half what I have been used to having here; but what I am after is more agreeable personal surroundings. I know that, under the circumstances, as we have been living I would ruin all chances for myself, and do no good for you or any one else, and at the same time spoil my health and whatever good nature I do have.

I do not want to drop you now altogether. I should like very much to hear from you often, for I know your intentions are the *very best*. When I get where I am going I will write to you the first thing. Repeating the wish that you may be happy and successful in all your undertakings,

I am your son,

X. Y. Z.

P. S.—I took just seven cases of honey.

Both of the above letters are exceedingly touching. Indeed, they will bring tears to many a parent's eyes, and perhaps also to the eyes of many a son or daughter. I do not know the boy's age; but whatever the age may be, I suppose he is at that critical period that I spoke of—almost a man.

When I was about 17 years old I was bashful and timid. I did not know how to act, and was afraid of society; but all at once there came a reaction. Something new seemed growing within me, and I, like friend X. Y. Z., felt as if it would do me good to get out into the world. While I still maintain that there is no friend to be found like the father and mother, I am at the same time forced to the conclusion that it oftentimes does a boy good—yes, and his father good too, but oftener the father than the mother—to let him go away from home awhile. My father and I were very much unlike—at least, when I was 17. In fact, our tastes ran in such different channels we were not very much "in touch." Mother, however, was a sort of bridge between us two. I longed for some expressions in regard to the mother in

both of the above letters. May be God has taken the mother away. If so, may the dear Savior come between that father and son, and cast out Satan, for it is all Satan's work, and both father and son are surely to be pitied.

Well, when I was 17 I had formed my project of going away from home. I was helping father one Saturday afternoon, drawing corn-fodder. Now, in those times I did not like corn-fodder, nor horses nor pigs nor cattle, nor muddy corn-fields. But I worked pretty well that day. With much fear and trembling I told my father what I wanted to do. Perhaps we had talked it over in a general way somewhat before. I told him my plans, and that I wanted a five-dollar bill to complete my outfit. I wanted it that very day. He was silent for quite a spell. Finally he stopped his work; his face softened into a smile, and he took out the old familiar leathern pocketbook. Oh how much good it did me to see that smile! I knew how scarce five-dollar bills were, and I knew how he needed them to prepare for winter, for my parents were comparatively poor in those days. He surprised me somewhat by handing me the money so readily, and made some pleasant remark to the effect that, if my plan ended in failure, I would learn something by experience any way. Yes, I did. I got out of money, and was sick at a hotel. But I was too proud to write home, so I worked and got some money, sent back to the hotel for my things, and six months afterward I came home on a visit. Oh what a delightful day that was! I was a little better dressed than when I went away; and, at least in my own estimation, I was ever so much more of a man. The six months away from home had been a grand school to me. I had learned something of the wickedness of the world; but the thought of the home, the mother, the father, and sisters, had held me pretty well from the evils I met. Did my father do a wise thing in helping me to go off when he needed me greatly at home? I think he did. Most of the time I was not far away from my older sisters. But I was loose and free, and had a tussle in making my way through the great selfish world, as some people call it.

I am afraid, dear friend A. B. C., that you have not taken just the best plan with your boy. Please do not feel hard if I suggest that you two have not been in touch as you might have been. I know it is pretty hard to hold a parent responsible for the sudden turns that a boy in his teens may take; but above all things I think a father should be careful to see that there is harmony between him and his boy. Never mind the honey he took. Do not question whether he had fairly earned it or not. Tell him it is all right, and do anything or sacrifice almost any thing to still preserve friendly relations. A man should never quarrel with his wife. He should not talk about her to the neighbors. He should be ashamed to mention her faults to any living being. Now, I think it should be pretty much the same with his boy. If your boy is bad, do not tell it to *anybody*, unless it is to go to the great God above and tell him your troubles as you pray for your boy. Has not the boy got it pretty nearly right when he says you two are poorly calculated to live together—that is, such *has* been the case? Now forgive me, dear friend, for saying that such need be the case no longer. There is a way by which we may be changed over, and become different. "Ye must be born again," so the Savior said. The love of Jesus Christ can so baptize us over anew that we shall be no longer the same we were before. I wish I could feel, dear father,

that you were praying for that boy, and that that boy could be moved to remember you in his prayers, for I believe that even a boy prays sometimes, for even a boy at times has thoughts and feelings that God accepts as a prayer. When you two are praying for each other, how quick will the new relations come!—the harmony, the peace, the loving confidence, that should always exist between father and son!

Now, dear readers, please do not imagine that I am such a model father as I am holding up to you. My conscience accuses me while I write. But, may God be praised, I can, right in my own home, find an illustration of what I am trying to teach.

These September days have been very warm—yes, and the nights have been warm too. Mrs. Root has much trouble in sleeping during sultry nights. With the opening of school and the approach of house-cleaning time, and other things I need not mention, many cares have come upon her. She has been greatly wearied of late. When I rush over from business for my ground meat or hot water, I find her flying about from one thing to another with a speed and untiring zeal that is often a rebuke to me. She is toiling for those she loves. You suggest hired help. There is work to be done in a household that nobody can be hired to do. It was at the close of one of the hottest days. I knew that she was tired out, and that she had slept but very little the night before. Her duties were almost ended; but a restless youth, "almost a man," burst in with his boyish enthusiasm, and wanted something of mamma. I was going to utter a protest; but they got off together in another room. I peeped in to remonstrate against it; but they seemed so busy, and in such perfect harmony in their plans and work, that I forebore scolding until I could look on a little. I had once or twice been inquisitive in regard to this new hobby of that "young Root"; but neither mamma nor Huber seemed inclined to enlighten me. I had faith in them both, however, to trust them and not insist. Now, what do you think they were up to? Why, mamma, tired out as she was, was fashioning some sort of great thick mitten, padded on the palm, so the wearer could catch a base-ball, no matter how hard or how swift it was thrown, and not hurt his hand. It had to be just exactly so to please the boy, and nobody but mother could do it. It was pretty late bedtime when the thing was finished. Why should I mention this trifling circumstance—something so natural and so common in almost every household? Because, dear parents and dear children, it illustrates the point I am trying to make. That boy and that mother have always been a *unit*. She has stood by him from his boyhood up; and I verily that, boy as he is, he would stand by his mother through *fire* and *flood*. Yes, I think the bond is so perfect that all the arts of the evil one—that all the machinery of vice and dissipation could never entice away that boy—at least, while his mother is living to hold up a warning hand. That same boy loves his father, and his father loves him; but the bond of sympathy is not like that between the boy and the mother. I fear the father has never yet reached the point where he would make the sacrifice that the mother does, that he might be in touch with the child. Had he come to me when I was tired out and unfolded to me his plans for something about base-ball, I fear I should have said that base-ball does not amount to very much any way, and that it was time for us all to go to bed. I fear I should not have been willing to get down on the floor by that boy's side, and

win a place in his heart that would hold stronger than massive cables or iron chains—a bond of sympathy that would hold him secure when Satan commences, as he will a little later, just as that boy begins to feel the throbbings of manhood and ambition through his boyish frame. May the dear Savior bless these words and make them plain to the fathers and mothers and the children. Excuse me for just one more illustration in this very line.

There is also in our household, thank God, one who is "almost a woman." Her studies were interrupted a year or two ago in consequence of overtaxing her eyes. She must drop her education for the time being, or somebody must be eyes for her. Different members of the family took their turn; her relatives lent a strong helping hand; but sooner or later success or failure depended on the *mother's* assistance. The mother did not, in her girlhood, have the advantages that most of us do now; but through long years, oftentimes as I close my eyes in sleep at night, I have listened to the reading and the recitations from the school-books; and history, physiology, and even Latin have been gone over; and the mother has surprised me again and again by giving me facts gleaned from schoolbooks, that I knew nothing about. We thought it a pretty hard dispensation of Providence when physicians declared our daughter must not use her eyes to read; but the mother's life has been refreshed and broadened by her school studies, even after she was fifty years of age. I mention this for the encouragement of other mothers. A man, or woman either, can commence and successfully master every branch of study taught in our common schools, *after they are fifty years old*, if they only have the will to do it.

I have been told the English people are clanish—that they hang together; that the different members of the family will stand up for each other. From my experience with one daughter of "Merrie England" I half believe this to be true. May God grant that it is true; and may England's sons and daughters both teach us Yankees wholesome lessons to the extent of being clanish enough to make the family circle hold together.

Now a word to this boy. Dear young friend, let me whisper to you to bear with your father, if need be. Do not have trouble with him if it be a possible thing. Write kind and friendly letters to him often. Make him a visit now and then, no matter what it costs you. Keep up and preserve friendly relations. Read that grand old story about the prodigal son; read it again and again. And, oh if I could only hope, dear boy, that my poor efforts during this pleasant afternoon could have the effect of calling your attention toward that precious book, the word of God, how happy I should be! Very likely I shall meet your father before many years. Perhaps I may see you too. Would it be hoping for too much to believe that I might some day hear you tell me you have given up tobacco, strong drink, and games of chance for ever? May be your father is a little mistaken about these things. Won't you set to work to convince him he is wrong? You speak about being naturally unsociable. Why, my dear friend, that is one of my failings, if I don't guard against it and look out for the tempter. Won't you write briefly and tell me that I am at least pretty nearly right about it?

HOWARD H. RUSSELL'S TEMPERANCE WORK IN OHIO.

Some years ago our pastor, in his opening prayer one Sunday morning, took occasion to

thank the Lord for our enemies, for they tell us of our faults. Well, now, it seems the enemies of temperance are doing a still greater service in the State of Ohio. They are advertising the Anti-saloon League. At a meeting of the Ohio State Liquor League, recently held in Springfield, O., the president, in his address, made the following speech, which we copy from the *Cleveland Plain Dealer*:

"Few of you are fully aware of the powerful organization that has been effected throughout the State by Rev. Howard Russell, devoted entirely to this view of your business. He was our most bitter enemy in the Ohio legislature two years ago. He, with his aids, came near pushing legislation through the House of Representatives that would have meant death to the liquor-traffic. Since then he has tripled the strength of the Anti-saloon League.

"We are in a position to wipe the liquor-traffic entirely out this winter," are Russell's own words. Rev. Mr. Russell says the time for organization is not when the legislature is in session, but when it is not in session, and be in position to make a powerful front when it does convene. These are my sentiments exactly; and the Ohio State Liquor League has used every effort to do likewise; but, gentlemen, we have abundance of room for improvement, which I am afraid you will learn before this time next year.

"I have been through the mill, and will predict that, unless the liquor-men, who have millions of dollars invested, come closer together, become more thoroughly organized, discard all petty jealousies, and work as a unit, there will be legislation railroaded through the coming legislature that will wipe 75 per cent of the liquor-dealers entirely out of the business."



WHITTAKER OR MULTIPLIER ONIONS, FOR FALL PLANTING.

I have had 25 years' experience in planting these same onions *in the fall*. No, it is not too late. I always tell my audience, when talking on "revised edition" gardening, to plant a bed of Whittaker onions the time that farmers are sowing the first wheat; but I planted earlier this year than ever (Sept. 13), for the reason that it is so exceedingly dry here; and when it comes wet we may be detained. If your ground is not very mellow, incorporate wood ashes; for the greatest trouble you will likely have will be that your ground will get *hard* by spring. Guard this point. I have quit mulching in winter, but it is advantageous; but don't mulch heavy. A little corn-fodder is good; but old tomato-vines are best—they don't fit down to the surface so close, and the onions grow up among the vines. Brush are good if they are just the kind—any thing to prevent the ground from freezing and thawing, for it has a tendency to raise the big bulbs out of the ground. Plant a little deep, and hoe the crop as soon as they start to grow. I have had them start very little in the fall, and still make an excellent crop. I have, when times were better, planted a good large onion, such as I will send you, and in the spring I pulled 18 onions from the one, and sold them at 10 cts.; but now times demand a nickel bunch, and we put in a dozen for a nickel. They are the best-selling vegetable I ever grew. In the spring we get southern onions here, three in a bunch, for a nickel; but a week or two later, when we begin with our nice fresh onions, the southern onion stops quick.

What may be called a "trick of the trade" is

to plant some smaller onions (same variety), only about the size of a guinea egg. These make three or four new onions only, but of course they are larger; but these are nice too; or, as the Irishman says, to "imbellish" the bunch. I will put in a few of the medium-sized ones, so you can try which you like best; but the medium take up room too fast, and don't turn out fast enough. I find nothing pays me better in gardening than to plant onions in the fall, and have them in market in April.

They are valuable, because, if onions are plentiful (*large* ones in particular), and dull sale, or if they start to grow, as onions sometimes do in warm winters, all you have to do is to plant them, no matter if they have grown 4 or 5 inches. The result of your planting will be a lot of small onions that are often valuable; if not valuable, plant again and get large ones. I do this; and unless I can get 10 cts. per quart I plant; and 10 cts. per quart means about 20 cts., because they are larger than sets usually are, and fill up twice as fast.

But this variety is valuable for another reason: They, as a rule, do not sprout nearly as readily as other onions, and are wonderfully dormant until in the *late* spring. Just last spring, onion-sets were 5 cts. per quart here; and, owing to their keeping quality, I was able to sell mine at 10 cts. Now, the large ones appear to sprout much more readily than the small ones. They should also be called *early*, because they come in a shorter time than other varieties of onions do if planted in spring.

Last spring I bought a bushel of these onions brought to one of the groceries by a Mrs. Taylor. They were not large, either. I planted them in very rich ground alone, to test the result of the investment. Before pulling-time I noticed from 5 to 7 onions or a bunch like the one I sent you by mail, apparently lying loose on the bunch of larger ones, the large ones yet green, and the small bunch ripe and ready to pick up, as they were loose, and lay unattached. I took over a bushel of small ones, worth three to four dollars; and when the rest were ready to harvest I had over four bushels of larger ones than I planted.

DR. F. M. MARTIN.

Mercersburg, Pa., Sept. 17.

□ The onions sent by friend Martin are remarkably solid and handsome. They look almost like the White Multiplier, but are of a bluish color. And, by the way, what is the real difference between Potato onions and White Multiplier onions, except that the Multiplier is white, and the Potato onions are straw color, or sometimes like what friend Martin calls the Whittaker onion? At \$2.50 per barrel, the price we paid him for these, we think there should be a large trade in them, if they are good keepers; and the larger ones are nice enough for anybody. His remarks in regard to the right kind of mulch agree with my experience exactly. Onions won't stand any thing that settles down flat and close, like stable manure, or even rotted straw. Old tomato-vines, and I should think bean-vines, where the beans have been thrashed out: evergreen boughs, or any thing that will stand up loose, letting in plenty of air, and yet proving a partial shade, is just about what we want for onions and a good many other plants that are almost winter-proof.

GAULT RASPBERRIES AND CRAIG SEEDLING POTATOES

The Gault raspberry-plant you sent me was planted on the 30th of April. By the 1st of Aug. it had put out 20 canes, measuring in all 54

feet. Two other canes now have bloom and berries on.

The Craig seedling potatoes you sent me arrived at the postoffice on the coldest Sunday of last winter, and were not taken out until Monday. They were frozen, all but six ounces. I now have 16 hills of the plants, and 60 side-shoot hills.

Garden City, Mo., Aug. 6.

G. J. YODER.

HUMBUGS AND SWINDLES.

ELECTROPOISE.

The latest circular sent out by the Electropoise people has on the outside of it, in large plain type, so as to attract attention, "Ministers of the Gospel." On looking closer you will see it reads "what ministers of the gospel say about it." Turning over the leaf we read the following:

The Electropoise is able to cure all diseases, no matter how various in character, because all diseases can be traced to one and the same source—weakness.

Now, these people have a good many times declared very positively that they never claimed it would cure *every* thing. How does the above sound? After my remarks on page 536 I sent for the instrument that was used at the time of the patient's death. It is one of the latest make, and I suppose it includes all the recent improvements (?). I used it faithfully according to directions, off and on, for more than two weeks, without being able to perceive any effect whatever. Mrs. Root has always been troubled for lack of sleep during hot weather. She also used the instrument according to directions; but instead of inducing sleep it kept her awake. She said the very idea of having something hitched to her ankle, and connected to a block of ice, was enough to keep a nervous person awake. Accompanying each instrument is a very pretty little book—leather-bound, gilt-edge, labeled on the outside, "Plain Directions for using the Electropoise." On page 8 we read:

□ Research and experiment through many years have shown that hydrogen and other electrically positive gases contained in the atmosphere, by their absorption, and passage through the skin and underlying tissues, in undue proportion, become the foundation of all the physical disturbances we call disease.

Now, will these ministers of the gospel, who are assisting to push Electropoise, please calmly consider the above statement? In the first place, hydrogen is not a component part of the atmosphere at all. It is found in water, but never in air. The expression, "electrically positive gases," does not mean any thing at all. There is no sense to it whatever; the same with the talk about "absorption," and "passage through the skin," etc. It is just jargon, humbug, and nonsense; and so on with the whole contents of the little book of 284 pages. It is really appalling to think any man of sense and judgment, or one who has any education at all, could be induced to fill a whole book with silly nonsense and unmeaning terms. Let me quote once more, from page 12:

It generates no current which is discoverable to the sensation of the patient.

□ The proprietors of the concern actually come out and declare that it produces no sensation perceptible to the patient at all. Therefore this thing without *sense, science, or sensation*, is what they are selling for \$25.00, and ministers of the gospel are helping on the work. Publishers of religious papers keep inserting

their advertisements, and unblushingly declare they are going to keep on doing so, with the above facts staring them in the face. I paid our friends who were swindled, \$5.00 for their \$25.00 instrument. If anybody else wants it for \$2.50 (is not this quite a jump, from \$25.00 down to \$2.50?) I shall be glad to sell out, book of instructions and all. If nobody can be found who has faith enough in it to give \$2.50 for a \$25.00 machine, then we will come down on the price still more. I tried to get some of the younger Roots to give it a test; but they simply laughed at their worthy parents for the pains they had taken to be sure there was no mistake about the thing.

Science Siftings, London, has taken up the matter of exposing Electropoise, for it seems they are already trying to push it across the water. They justly term it the "quack toy." We make one brief extract:

The Electropoise is an impudent and cruel fraud; and its very active proprietors are unblushing knaves who have conceived the notion of flooding our newspapers with fraudulent advertisements and raiding the attenuated pockets of our afflicted poor.

Special Notices.

We have a number of mismated Italian queens at 35 cents.

SEED POTATOES FOR FALL SHIPMENT.

Since prices given in our last issue, page 689, there has been some decline in the market. For instance, Beauty of Hebron will be as given in our last—peck, 15 cts.; bushel 40 cts.; two-bushel bag, 75 cts.; barrel of 11 pecks, \$1.25.

Monroe Seedling, Early Ohio, Early Puritan, Lee's Favorite, and Rural New Yorker, will be as follows: One peck, 20 cts.; bushel, 60 cts.; two-bushel bag, \$1.00; barrel (11 pecks), \$1.50. New Queen, Freeman, Burpee's Extra Early, 1 lb. by mail, postpaid, 15 cts.; 5 lbs., 35 cts.; peck, by freight or express, 35 cts.; bushel, \$1.00; 2 bushels, \$1.75; barrel of 11 pecks, \$2.50. Craig Seedling at prices given in our last issue, page 689. The Craigs are still growing as if their lives depended on it, no frost having interrupted them up to this date, September 30.

SIR WILLIAM POTATOES.

On page 689 of our last issue, a lower quotation on Sir William potatoes was made than the market price will warrant. It was a misunderstanding on my part—or, perhaps, a blunder of mine. Accordingly, that quotation on the Sir William is withdrawn. The following is, for the present, to be the price, and no orders accepted for less than a barrel:

Barrel, \$3.50; 5 barrels, \$16.25; 10 barrels, \$30.00. All will be shipped in October and November, in new full-sized apple-barrels, free on board cars at Hudson.

The potatoes will be of the crop grown by Mr. Chamberlain himself, the same as I described in our present issue, and are guaranteed to be true to name, pure from mixture, and averaging large size, with none below good planting size. They will be packed and shipped by Mr. Chamberlain.

JUTE SACKS FOR HANDLING AND SHIPPING POTATOES.

Of course, the potato-boxes are, all things considered, about the neatest and handiest thing ever gotten up, for handling or storing potatoes; but with the immense crop and low prices of this present season it is very often desirable to use sacks; and we have had potatoes shipped in sacks that came to us in very good order. The expense of transporting sacks is, of course, very much less than with boxes. After some investigation we have succeeded in finding a very strong, substantial jute bag, holding two bushels each, suitable for potatoes, grain, or almost any purpose that bags are ever used for, which we can supply at the following low prices: 10 cts. each; 90 cts. for 10; \$8.00 per 100; \$75.00 per 1000. A bag of the same material, holding only one bushel, 5c each; 45c for 10; \$4.25 per 100. If you would

like to see such a bag before purchasing, we can mail you a sample of either, at a cost for postage of 7 and 16c respectively.

GARDENING FOR OCTOBER.

Most of the gardening done now will be to save the crops from frost, and to make the most of every thing. Do not be discouraged, even if prices are low; but get every thing out of the way of freezing. Gather the beans as soon as dry enough; and if a frost threatens, do not wait for them to get dry, but get them into an open shed; spread them out where they will not heat, and many of them will ripen up nice. Fruit and even forest trees may be planted in the fall; and, when properly done, I believe there is an advantage in it. Look out for stuff, however, that is liable to be thrown out by the frost. If you have had experience, and know how to do it, you can succeed; but if you are new at the business, go slow until you learn the trade. Do not forget to hoe and cultivate cabbage and cauliflower that are not yet headed up. Now is the time to raise the finest cauliflower of the season; also look after the spinach and potato onions, and others that are to be wintered outdoors. You can keep strawberries growing right along until Christmas, if the ground does not freeze.

DRUMMOND'S ADDRESSES, ETC.

Most people have read or heard more or less of Henry Drummond's stirring, and, we might say, startling, exhortations to righteousness and right-doing. In fact, his one address, "The Greatest Thing in the World," had such a run that it was sold by newsboys on the cars, even though the price was kept up for a time to 25 and even 50 cts. a copy. When I first read it I made some mention of it in our Home Papers. But I protested at the outset against charging such a price for a pamphlet of 30 or 40 pages. We have succeeded, however, by purchasing 500 copies outright, in getting them so we can send them by mail for only 10 cts. each. Now, if you have never read "The Greatest Thing in the World" you certainly want this little pamphlet. It is handsomely gotten up, in paper covers, and contains 52 pages, and will probably be read by almost any one who picks it up and commences to read it, even if it is a sort of sermon; and it will bear reading again and again. I am so anxious to see it find a place on the reading-table of every home that I would almost send it free of charge if that were the right and proper thing to do; and we will, anyhow, do this: Every subscriber who sends us \$1.00 for GLEANINGS for one year, and in the same letter says he would like "The Greatest Thing in the World" as a premium for subscribing early, can have it free of charge.

Now, some of you may prefer to pay a little more, and have a neatly bound book—one that would be handsome enough to place on your center-table. Such a book is published, neatly bound in cloth, at the price of 75 cts. It contains not only the address, "The Greatest Thing in the World," but a brief sketch of Prof. Henry Drummond, and five other addresses, with an engraving of the author. It is a book of 127 pages, and the price, as I have told you, is 75 cts. by mail; but by buying a large number of copies we are enabled to furnish it for only 25 cents, if ordered with other goods, or 30 cents by mail. If you want something for a Christmas present, I do not know of a book in the world that will answer any better. Prof. Drummond is clear up to the front in all modern science and theology; and all mankind, no matter what their belief, seem to be united in acknowledging that he has done a great work in making the religion of Christ Jesus plain, sensible, and practicable. You need not be afraid of dry theology. Every page of his writings is alive, and up to the present time and present wants and needs. Perhaps you had better get the little ten-cent book first, and see if you do not agree with me, and want the larger one. We will send the larger book to any person, a subscriber, who keeps up his own subscription, and sends us one new name along with his subscription.

TO close out before uniting nuclei I will mail 1 untested queen for 50c. Order at once. Plenty nice queens on hand.

W. H. LAWS, Lavaca, Ark.

Daughters of Imported Italian Queen.

One for 50c; 3 for \$1.25; 6 for \$2.25; 12 for \$4.00. Safe arrival and satisfaction guaranteed. References: E. A. Sheldon, L. C. Tift, Independence, Ia.

Albert Hines, Independence, Ia.

For \$350.00. One hundred 2-story hives complete for comb honey; bees and hives in good order. Inquire of **A. LEYVRAZ, Francis, Fla.**

Alfalfa Clover Seed. 1 to 4 lbs., 25c per lb.; postage, 8c per pound extra. Bushel, \$8.00. Sample, postpaid, 25c. **A. H. DUFF, Larned, Kan.**

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.



Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,

127fdb Sole Manufacturers,
Sprout Brook, Montgomery Co., N. Y.

Promptness is What Counts.

Honey-jars, Shipping-cases, and every thing that bee-keepers use. **Root's Goods at Root's Prices, and the Best Shipping-point in the Country.** Dealers in Honey and Beeswax. Catalog free.

WALTER S. POWDER,

162 Massachusetts Ave., Indianapolis, Ind.



IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians**, the result of 16 years' careful breeding.

Dr. H. B. Lung Harrodsburg, Ky., says: "I have had the pleasure of seeing many fine strains of bees, yet I have never seen such industrious energetic bees. I must express my admiration for your success as a bee propagator."

Reduced Prices: Warranted queens, 70c; 3 for \$1.95; 1 doz., \$7.00. Untested, 60c; 10 or more, 50c each. Select Warranted, 90c; Select Untested, 80c; Tested, \$1.00. Select Tested Breeders, \$1.50 each.

Those who have never dealt with me, I refer to A. I. Root, who has purchased of me 808 queens. Circular free.

J. P. MOORE, Morgan, Pendleton Co., Ky.

In responding to this advertisement mention GLEANINGS

BEGINNERS.

Beginners should have a copy of the Amateur Bee-keeper, a 70-page book by Prof. J. W. Rouse. Price 25 cents; if sent by mail, 28c. The little book and the Progressive Bee-keeper (a live progressive 28-page monthly journal) one year, 65c. Address any first-class dealer, or

LEAHY MFG. CO., HIGGINSVILLE, Mo.

Queens, Either 3 or 5 Banded.

60c each; 6 for \$3.25. These low prices are to induce you to try them. Catalog free.

CHAS. H. THIES, Steeleville, Ill.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee Hives, Shipping-Crates, Frames, Foundation, Smokers, etc.

PAGE & LYON MFG. CO.,

8tidd

New London, Wis

Please mention GLEANINGS.

21-8db

HATCH CHICKENS BY STEAM-

With the **MODEL**
Excelsior Incubator.

Simple. Perfect. Self-Regulating. Thousands in successful operation. Guaranteed to hatch a larger percentage of fertile eggs at less cost than any other hatcher. Lowest priced first-class hatcher made. **GEO. H. STAHL,**
114 to 122 S. 6th St., Quincy, Ill.

Circulars free.
Send 6c. for
Illus. Catalogue.

In responding to this advertisement mention GLEANINGS

BLACK MINORCAS.

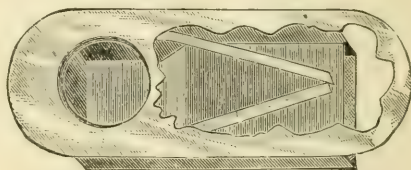
I have a choice lot of fine cockerels for \$1.00 each; trio for \$2.00. If birds are not satisfactory they may be returned at my expense, and I will refund the full amount paid.

CHAS. BIERY, Novi, Mich.

62 Colonies of Pure Italian Bees for sale cheap. In 8-frame Langstroth hives. Must be sold on account of removal.

F. J. GUNZEL, Claytonville, Ill.

Advantages of Bee-Escapes.



No sweat steals down the heated cheeks and aching back of the bee-keeper as the result of standing in the hot sun puffing, blowing, smoking, and brushing bees; no time is wasted in these disagreeable operations; and no stings received in resentment of such treatment; the honey is secured free from black or even the taint of smoke; the cappings are not injured by the gnawings of bees; and robbers stand no show whatever. If there are any broken burr-combs they are cleaned up by the bees inside the hive, before the honey is removed. **Leading Bee-keepers use the Porter Escape**, and say that without a trial it is impossible to realize the amount of vexatious, annoying, disagreeable work that it saves. The cost is only 20 cts. each, or \$2.25 per doz. As in the past, this escape is manufactured by the Porters, but The A. I. Root Co. has secured control of the sale for this country. Order of your dealer or of

THE A. I. ROOT CO., Medina, Ohio.

"The Southland Queen."

Send \$1.00 for the Southland Queen. Edited by the Atchley family. Plain, practical, and all fresh bee matter. Jennie Atchley is now conducting a bee-keeping school, that began in the June number. You can get back numbers.

A steam bee-hive factory; Root's goods; Dadant's foundation.

We have a fine lot of tested and untested queens for fall trade: Tested, \$1.50 each; untested, 75 cts. each, \$4.25 for six, or \$8.00 per dozen. Send for free catalog that tells all about queen-rearing, and sample journal.

THE JENNIE ATCKLEY CO.,
Beeville, Bee Co., Texas.

W. O. Victor, of Wharton, Tex., took

45,000 Lbs. of Honey in 1894.

He offers Italian Queens—good, old-style honey-queens—untested, first order, to any address, at 50c each. Also bees in any quantity; 450 colonies to draw from. **Root's goods constantly in stock.** Prices to suit the times. Buy near home, and save freight.

HONEY COLUMN.

CITY MARKETS.

CHICAGO.—*Honey.*—We quote fancy white 1-lb. comb honey, retail, 15; wholesale, 14; second grade, 13; amber, 11@12. With colder weather and fruits out of the market, we look for a good demand for honey, as maple sugar and maple syrup are very high and scarce. Extracted, 5½@6½, depending on quality and package. Beeswax, 30.

S. T. FISH & CO.,

Oct. 8. 189 South Water St., Chicago, Ill.

ALBANY.—*Honey.*—We have a firm market, and stock moving off briskly. White clover seems to have been a short crop, and but little on our market. Buckwheat, however, is plentiful, and quality good. We quote white clover, 13@15; buckwheat and mixed, 10@11. Extracted, light, 6½; dark, 5½@6.

CHAS. McCULLOCH & CO.,

Oct. 8. Albany, N. Y.

BOSTON.—*Honey.*—We are pleased to note a little better demand for honey; but the California comb is keeping down the price of the Vermont. We quote Vermont comb at 15@16; New York, 14@15; California, 13, for No. 1 stock. California extracted, 5@6, according to quality.

E. E. BLAKE & CO.,

Oct. 10. Boston, Mass.

BUFFALO.—*Honey.*—We quote fancy honey, 15@16, with the receipts light; choice, 13@14; buckwheat moving slowly at 9@12. Beeswax wanted at 28 to 30. Extracted, slow sale in our market. Liberal shipments of choice could be placed here to very good advantage.

BATTERSON & CO.,

Oct. 9. Buffalo, N. Y.

KANSAS CITY.—*Honey.*—The demand and supply fair for comb honey. Demand for extracted light. We quote No. 1 white, 1-lb. comb, 13@14; No. 2, 12@13; No. 1 amber, 11@12; No. 2, 8@10; extracted, white, 6@6½; amber, 5@5½; dark, 4½. Beeswax, 20@25.

C. C. CLEMONS & CO.,

Oct. 4. Kansas City, Mo.

MILWAUKEE.—*Honey.*—This market is in good condition for shipments of honey. The supply on hand is not large, and the receipts only fair, while the demand is improving. The fruit season is nearly over, and the consumption of honey will increase from this time forward. We quote 1-lb. white, choice, 16@17; good, 15@16; fair, 14@15; dark, 8@10. Extracted white, in barrels, or kegs, 7½@8½; dark or amber, 5@6. Beeswax, 27.

A. V. BISHOP & CO.,

Oct. 5. Milwaukee, Wis.

CHICAGO.—*Honey.*—Honey is not selling fast, and market is nominal. We quote best or fancy, 15; but good No. 1 stock sells at 12@14; dark, 8@10; yellow grades, 9@10. Extracted very dull at 4½@7. The amber or dark grades are in large supply. Beeswax, 28@30.

R. A. BURNETT & CO.,

Oct. 8. 163 So. Water St., Chicago, Ill.

CLEVELAND.—*Honey.*—Our market is doing better on honey, and present receipts are picked up as fast as received. Fancy white comb in 1-lb. sections is selling at 17@18; No. 1 white, 15@16; choice, 14; buckwheat, 12@13. Strained honey, white, 7@8. Beeswax, 26@28.

WILLIAMS BROS.,

Oct. 8. 80 & 82 Broadway, Cleveland, O.

PHILADELPHIA.—*Honey.*—The honey market is very active, and choice comb honey sells quick on arrival; but low prices seem to prevail. Beeswax is moving slowly, not much demand, but is firm at present prices. We quote buckwheat, comb, 10; choice white, 12; fancy, 14. Extracted, 4@6. Beeswax, 26.

WM. A. SELSER,

Oct. 9. No. 10 Vine St., Philadelphia, Pa.

CINCINNATI.—*Honey.*—There is good demand for choice white comb honey at 14@16; dark grades found a ready sale of late at 12@14 in the jobbing way. Demand is good for extracted honey at 4@7. Supply of all kinds is insufficient. Demand is good for beeswax at 20@25 for good to choice yellow.

CHAS. F. MUTH & SON,

Oct. 9. Cincinnati, O.

KANSAS CITY.—*Honey.*—Stock of comb and extracted honey light. Demand good for comb. We quote No. 1 white, 15; amber, 13; dark, 10@11. Extracted, 4½@7. Beeswax, 22.

HAMBLIN & BEARSS,

Kansas City, Mo.

Oct. 9.

NEW YORK.—*Honey.*—There is good demand for comb honey, and choice stock is moving off freely. While the supply of fancy white glassed, and in paper boxes, is limited (owing to the short crop in New York State), California sends enough (unglassed) to make up the deficiency. We quote fancy white, 15; fair white, 12@13; buckwheat, 9@10. Extracted is in fairly good demand, with a large supply. We quote California, 5½@6; white clover and basswood, 6@6½; Southern, 45@55 per gallon. Beeswax dull at 27@28.

HILDRETH BROS. & SEGELKEN,

Oct. 10. 28 & 30 West Broadway, New York.

SPRINGFIELD.—*Honey.*—We quote white-clover honey, 16@18; buckwheat, 12. Would like to buy several tons of fancy white-clover honey, in 1-lb. packages.

PERKINS & HATCH,

Oct. 9. Springfield, Mass.

ST. LOUIS.—*Honey.*—Market very quiet. Comb, 10@12. Extracted, in cans, 5½@6; in barrels, 4½@5. Prime yellow beeswax, 25½.

D. G. TUTT GROCERY CO.,

Oct. 11. St. Louis, Mo.

DENVER.—*Honey.*—Since our last report there has been much change in our honey market. The shipments we have received run below those of previous years in quality. We quote No. 1 comb in 1-lb. sections, suitable for our cartons, 10@11. Extracted, No. 1 white, in 60-lb. cans, two in a case, 5@6. Beeswax, 20@25.

R. K. & J. C. FRISBEE,

Oct. 10. Denver, Col.

FOR SALE.—Choice extracted honey.

ELIAS FOX, Hillsboro, Wis.

ALFALFA HONEY, very white, thick, and rich. Two 60-lb. cans at 7c. Same, partly from clover (tinted), 6c. Samples, 8c.

OLIVER FOSTER, Las Animas, Col.

ALFALFA IN ARIZONA.—We will sell you alfalfa honey F. O. B. Phoenix at 4½c in 1000-lb. lots or more. Less than 1000 lbs. at 5c in five-gallon cans. Car lots a specialty.

J. P. IVY,

Secretary Bee-keepers' Association, Phoenix, Maricopa Co., Arizona.

WANTED.—To buy quantity lots of fancy comb honey. Also to sell water-white extracted honey in 60-lb. cans.

B. WALKER, Evart, Mich.

FOR SALE.—Buckwheat and amber extracted honey in half-barrels, about 150 lbs. each; well ripened. Prices on application.

J. I. PARENT,

Elft Birchtown, Saratoga Co., N. Y.

FOR SALE.—1200 lbs. of honey, in 60-lb. square cans, 6½ cts. per lb., f.o.b. cars here. Sample by mail.

R. H. BAILEY,

195t Ausable Forks, Essex Co., N. Y.

FOR SALE.—We have 14,000 lbs. of choice white extracted honey, in barrels of about 400 lbs., at 6 cts. per lb., f.o.b. cars at apiary. Sample mailed for 8 cts. in stamps.

THE CROSBY CO.,

San Mateo, Fla.

Extracted honey in barrels at 6½ cts., or in 60-lb. pails at 7c.

CHAS. DADANT & SON,
Hamilton, Hancock Co., Ill.

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,

12tfdb Sole Manufacturers,
Sprout Brook, Montgomery Co., N. Y.



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HONEY MARKET.

There is a brisk demand in the Cleveland market for choice white comb honey, and the supply so far is very limited. Honey is selling by commission men at 15 to 16c for choice white; and in large lots to jobbers, who buy outright, it brings about 14c. We could place a good deal more than we have been able to secure so far. We should like to hear from those who have some choice lots to market. There is not so much demand for extracted honey as for comb. Perhaps if we offered it put up in small attractive packages we should have a better sale for it. We offer choice white-sage honey or white Michigan honey, in 60-lb. cans, 2 in a case, at 8c; lots of 2 cases or over, 7½c.

ROOT'S SUPERIOR EXTRA-POLISHED SECTIONS.

We have just got into operation the past week a new and quite elaborate and expensive machine for the manufacture of section boxes, which not only secures more accurate and better work, but enables one man and boy to do the work which before required four or five to do. The sections we are now turning out are superb in every way. We can hardly see how it is possible to surpass them, and we question whether their equal is made. Having a very large stock of choice white basswood we are better prepared than ever before to supply beekeepers and dealers with a superior article, and we shall be pleased to hear from dealers before they make their contracts for next season's supply. Samples mailed free to those interested.

TRY US. We sell your Poultry, Veals, Fruits and all produce at highest prices. DAILY RETURNS. For stencils, prices and references, write F. I. SAGE & SONS, 183 Reade St., N. Y.

Peach Trees. All the best varieties, 10 by mail, 60c; by express or freight, 4c each.

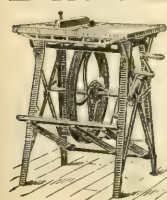
Plum Trees. Abundance, Burbank, Satsuma, 5 by mail, 60c; by express or freight, 10c each.

CEDAR GROVE FARM,
John Cadwallader, Proprietor,
North Madison, Ind.

Potatoes.

Craig's Seedling, Everett's Early, and Freeman, at prices given by A. I. Root.

W. B. Collins, Blackwater, Cooper Co., Mo.



Read what J. I. PARENT, of CHARLTON, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to

THE A. I. ROOT CO.

Please mention this paper.

Promptness is What Counts.

Honey-jars, Shipping-cases, and every thing that bee-keepers use. Root's Goods at Root's Prices, and the Best Shipping-point in the Country. Dealers in Honey and Beeswax. Catalog free.



WALTER S. POWDER,
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VALUABLE SPECIMENS of Gold, Silver, and Copper Ores

sent by mail to any address for 25 cts., or larger sizes for 50 cts. each. Ten or more specimens, all different, of any size, for cabinets, at special rates on application.

F. E. JORDAN, Jerome, Arizona.

CLOSING OUT!

Warranted Italian queens, at 60c each; 4 for \$2.00. Tested, \$1.00 each; 4 for \$3.00. Select tested, \$1.25 each; 3 for \$3.00. Don't let this chance slip. Safe arrival and satisfaction guaranteed.

J. P. MOORE, Morgan, Pendleton Co., Ky.

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WANTED.—To exchange 26-in. planer, power scroll saw, all iron; tenoner, and mortiser, for portable sawmill, or other wood-working machinery. Will give a bargain for cash.
GEO. KALL, Frenchville, Tremp. Co., Wis.

WANTED.—To exchange foundation-mills and honey-extractors for honey or wax.
I. J. STRINGHAM, 105 Park Place, New York.

WANTED.—To exchange 200 colonies of bees for anything useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange 2 female fox hounds in whelp; also violin, organ, bone-mill, and set of butcher tools, for any thing useful.
ELIAS FOX, Hillsboro, Wis.

WANTED.—To exchange 28-inch pneumatic, for lady or gent; also a lot of fine young queens for honey or offers.
CHAS. H. THIES, Steelville, Ill.

WANTED.—To exchange English Beagle hounds, both sexes, old or young, choice bred, for modern fire-arms or offers.
D. S. HALL, South Cabot, Vt.

WANTED.—To exchange raspberry and blackberry plants, \$5 00 per M., for currant-plants.
A. P. LAWRENCE, Hickory Corners, Mich.

WANTED.—Extracted honey, 1000 lbs. Bees, 25 colonies. Send sample and price.
S. RICHARDSON, Care Box 34, Hartford City, Ind.

WANTED.—To exchange honey for second-hand baby-buggy and farm wagon.
JOHN BURR, Braceville, Ill.

WANTED.—Onion-sets cheap by bushel. Will exchange figwort seed or pay cash.
J. E. JOHNSON, Williamsfield, Ill.

WANTED.—To exchange 10-inch Pelham foundation-mill for honey or offers.
WALTER S. POWDER, Indianapolis, Ind.

WANTED.—To exchange 10-inch Root foundation-mill, good as new, bee-smokers, Porter bee-escapes, for job printing-press and type. Write quick.
OSCAR KERNS, Cowgill, Mo.

WANTED.—To exchange safety bicycle, fitted with pneumatic tires, for gun, foot-power saw, or offers.
ROBERT B. GEDYE, La Salle, Ill.

WANTED.—To exchange safety bicycles, Barnes No. 4½ lathe for metal work, Odell type-writer, for honey, beeswax, or gasoline or kerosene engine.
J. A. GREEN, Ottawa, Ill.

Winter Losses

etc., etc. Successful wintering comes from a proper combination of different conditions. For clear, concise, comprehensive conclusions upon these all-important points, consult "**Advanced Bee Culture**." Five of its thirty-two chapters treat as many different phases of the wintering problem. Price of the book, 50 cts. The **Review** one year and the book for \$1.25. New subscribers get balance of this year free. I can still furnish queens by return mail at \$1.00 each, or \$5.00 for six. One queen and the **Review** for \$1.50. Queen and book, \$1.25. Queen, **Review**, and book, \$2.00.

W. Z. HUTCHINSON, Flint, Michigan.

THE TORONTO CONVENTION REPORT FREE!

A **Full Report** of the Proceedings of the North American convention held at Toronto, Canada, will appear in the *weekly American Bee Journal* immediately after the meeting, Sept. 4, 5, and 6. The first installment will be in the number for Sept. 19. If not now a subscriber, you can have that Report free by sending \$1.00 now for the *American Bee Journal* for 1896, as we will "throw in" the balance of the year 1895, beginning with Sept. 19, to new subscribers. Think of it! over 15 months (or nearly 70 numbers) of the old *American Bee Journal* for only \$1.00! Sample copy of *Bee Journal* free.

And, besides all that, each new subscriber will receive a free copy of the 160 page book, "Bees and Honey." Better send on your dollar at once, and join the procession. Mention this paper, please.

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Proof Beyond Doubt.

A customer, looking over my 400 hives in home apiary, said, "Where are your bees? Mine were flying all around thick this morning." I said, "Just stop; look down at any hive." He was amazed. They were just pouring in thick with their heavy loads. This proves two things—they can't be excelled as workers, and quiet.

I opened several hives. He had no veil; was in the apiary $\frac{1}{2}$ of an hour; was not bothered once. Try them. Untested guaranteed queens, 75c. Send for wholesale price list.

Wm. A. Selser,
Wyncote, Pa.

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MUTH'S HONEY-EXTRACTOR, SQUARE GLASS HONEY-JARS.

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "Practical Hints" will be mailed for 10c in stamps. Apply to

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SECTIONS, BEE-HIVES, SHIPPING-CASES

We make a specialty of these goods, and defy competition in quality, workmanship, and prices.

Write for free, illustrated catalog and price list.

G. B. Lewis Co., Watertown, Wis.

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Sections, Extractors, Smokers, and every thing a bee-keeper wants. Honest Goods at Close Honest Prices. 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

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Awarded my **Foundation**. Send for **free samples**. Dealers, write for wholesale prices. Root's new **Polished Sections** and other goods at his prices. **Free Illustrated Price List** of every thing needed in the apiary. **M. H. Hunt.**
Bell Branch, Mich.

BEGINNERS.

Beginners should have a copy of the *Amateur Bee-keeper*, a 70-page book by Prof. J. W. Rouse. Price 25 cents; if sent by mail, 28c. The little book and the *Progressive Bee-keeper* (a live progressive 28-page monthly journal) one year, 65c. Address any first-class dealer, or

LEAHY MFG. CO., HIGGINSVILLE, MO.

For \$350.00. One hundred 2-story hives complete for comb honey; bees and hives in good order. Inquire of A. LEYVRAZ, Francis, Fla.

GLEANINGS

A JOURNAL DEVOTED
TO BEES
AND HONEY
AND HOME
INTERESTS.

BEE CULTURE

ILLUSTRATED
SEMI-MONTHLY
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\$1.00 PER YEAR MEDINA, OHIO.

Vol. XXIII.

OCT. 15, 1895.

No. 20.

STRAY STRAWS

FROM DR. C. C. MILLER.

ABOUT THIS TIME we begin to whistle up our courage by telling how bright the prospect is for next year.

THE HUNGARIAN government in ten years has appropriated nearly \$40,000 for the advancement of bee culture. In seven years the products have doubled.

THE FIRST FROST here came Sept. 28—a hard freeze. Oct. 3 the bees are at work on sweet clover and on the few blossoms yet to be found on spring-sown crimson clover.

THE *Bienen-Vater* contains an account of bees carrying in the resinous little leaves from the buds of poplars and horse-chestnuts, carrying them with their jaws, evidently to be used as propolis.

A DRONE, we have always been taught, takes 24 days to develop from the egg; but H. W. Brice says, in *British Bee Journal*, that, after much and careful observation, he is sure it requires 25 days.

DECIDEDLY, I don't believe in many and long essays at conventions; but if every one was as meaty and discussion-provoking as that of B. Taylor at Toronto I don't know but I might change my views.

THE FOUL-BROOD bacillus, under favorable circumstances, increases by division about once every half hour, so that in 10 hours a single bacillus increases to a million! If you doubt that, figure it up for yourself.

GRAVENHORST has been wrestling with the conundrum, "Why do bees sometimes get nothing from clover when in full-bloom?" and got the worst of it. A young fellow like him had better fool with something easier.

IF BEESWAX from foul-broody colonies is used for making foundation before it is carefully cleansed, the spores remain in the wax, and no one then denies that foul brood may be conveyed thereby.—*Neuman, in Centralblatt.*

So far as my own observation is concerned, I agree with him that queens will pass readily from one story to another, the trouble I reported about getting a queen to lay in a second chamber being when she was confined there against her will.

THE STANDARD FRAME of Germany is about a sixth smaller than the Langstroth. Lehzen, editor of the excellent *Centralblatt*, thinks there should be two standards—the larger for regions with spring and summer flow, and the smaller for regions with fall flow.

THE ROSE OF SHARON, by which I suppose is meant the althea, on p. 742, is not the thing that gave the vanilla flavor to that honey York raised. The tree or bush is too tender to live here. Sometimes I've had a little suspicion the flavor came from sweet clover; but then, again, I don't know.

THE BEE-LOUSE, Dr. Balint says, is not a parasite, as heretofore supposed, but a commensal or table companion, merely sharing with the bee the food taken by the latter.—*Bienenpflege*. [I believe this is right. I never have seen a case, and I've seen a good many, where the queen or bee showed evidence of harm from the so-called louse.—ED.]

CHILLED BEES, stranded away from the cluster in the hive, are nothing very unusual; but I think I never saw such a thing outside the hive till this fall. Sept. 22 we had a 90° temperature, and at night it dropped 40 or 50°. Next morning I found a few bees chilled on the front of the hive where a cluster had been hanging out the evening before.

MY SYMPATHY is with the man who complains of alteration of articles in *GLEANINGS*. There's that article of mine on page 739; the very best part of it is suppressed—the editorial footnote. [Yes, that was an oversight—that is, the last paragraph of yours. I have been trying to figure out whether it was a joke on me or you. As to the footnote in question, see editorial.—ED.]

J. I. EARL, p. 731, takes a wrong meaning from that Straw on p. 583. I meant it was of more consequence to have a big harvest than to have

any particular hive, not exactly that "it wouldn't make any difference what kind of a hive." But will he please tell us *why* he thinks the bees are piling in the honey in the small hives and doing little in the large ones? And if the hives are changed, will the bees change their department?

LET UP A LITTLE, friend Root, on the Electropoise people, and go for the religious papers that advertise it just because they make money by it. ["Let up!"—My, oh my! You are using slang. But he is "going for" the religious papers. Notwithstanding that he has written letter after letter to those same publications, some of them still persist in putting the ad. in. Is it the almighty dollar that is at the bottom of it? God forbid.—Ed.]

IN CENTRALBLATT is given the following plan, discovered by Prof. Landolt, to detect paraffine in beeswax. Into a porcelain dish pour over a small piece of the mass sulphuric acid, and heat it, whereby the wax becomes blackened, and swells up through the gas generated. When the generation of gas ceases—which is stronger, the less paraffine is present—heat the mass again a few minutes and let it cool. If paraffine is present it will be found as a transparent stratum, easily separated from the surface of the black liquid.

SWEET CLOVER. So much testimony has come in to show that sweet clover is a good honey-plant that more is hardly needed unless to show that it yields enough to occupy the ground for honey alone. The testimony now needed is, to show that it is a good forage-plant. Let that once be established, and we may see it come in to general cultivation. [Both facts are, I think, well established; but the trouble is, the world does not know it. If the writers on bees for the agricultural press would take pains to emphasize them it would help the world to know it.—Ed.]

So, MR. ERNEST, in estimating the average yield you don't count failures. (See p. 691.) If a colony yields 25 pounds every alternate year, and the other years has to be fed 25 pounds to make it pull through, would you say the average yield was 25 pounds? Now will you "yield"? [No, I just won't. Your locality seems to be blessed (?) with a series of off years. In most localities, and especially with the small beekeepers, the seasons when the bees yielded absolutely no honey and have to be fed 25 lbs. are rare. Your supposed case is a rather extreme one.—Ed.]

SAY, ERNEST, in speaking of the crock feeder on page 745, why do you say, "Be sure the crock is level full"? Doesn't it work all right if only half full? [Unless the crock is clear brim full of sugar and water when it is inverted with the plate, a lot of the liquid will escape, owing to the air in the space not filled.

The sweetened water will bubble out and run down over the combs and bees, until atmospheric pressure on the outside equals the downward pressure of the sugar and water in the crock. When it is full the leakage does not take place.—Ed.]

THAT HEADLINE on p. 732, "Bees Necessary for Strawberry-fruited; indisputable proof," looks as though the matter were fully settled. But what's to be done with the hundreds of acres producing good crops of berries, and hardly ever a bee to be seen? Doesn't that headline need a little tinkering? [Perhaps so. But we have mountains of proof that the bees work on the blossoms. If we reason by analogy, that is, consider the value of bees on other fruit-blossoms, we must admit a good deal. The heading in question had reference particularly to the article under it.—Ed.]

GENERAL CORRESPONDENCE

WM. G. MALIN.

SKETCH PREPARED BY HIS BROTHER-IN-LAW,
THE REV. L. L. LANGSTROTH.

My acquaintance with the late W. G. Malin began more than sixty years ago. It was formed under very painful circumstances; and his consideration and kindness quickly won my heart. From that time till his death, in 1887, I knew him well. In June, 1855, he married my sister, Anna Louise Langstroth, second daughter of the late John G. Langstroth. She died Nov. 5, 1855. I am now in my 85th year, and I can truly say I never knew a better man. The extracts from the history of the Pennsylvania Hospital render any further testimony to his worth quite unnecessary.



WM. G. MALIN.

For nearly sixty consecutive years in the employment of the same institution as clerk, librarian, and steward! What volumes of eulogy does such a career speak, both for Mr. Malin and the managers of that institution! Where can a parallel be found?

The son of a small farmer, with very few educational advantages in his early life, how truly remarkable was his career as a self-made man! I need but refer to

the hospital-records, below. No words of mine could add force to them.

Shortly after the introduction of the English sparrow into this country. Mr. Malin expressed to me his indignation of what seemed to him such folly, in language somewhat as follows: "Brother Lorenzo, if the men who imported this pestiferous bird knew as much about it as I do, some would think hanging was almost too good for them! My father was a small farmer; and I can well remember that, just as soon as the wheat had reached a growth that tempted these marauders, we boys were sent into the harvest-fields before daybreak with a lunch to frighten away the sparrows, as soon as they made their appearance; and there we stayed until it was almost too dark for us to see our hands before us."

And then, growing more indignant at the bad work that had been so ignorantly undertaken, he went on: "Why, brother, in many parts of Europe a premium is paid for the heads of sparrows; and in some municipalities a certain portion of the taxes *must* be paid in the heads of this pest."

What immense injuries have followed similar carelessness in the introduction of the English rabbit into Australia, the Scotch thistle into Canada, and the gipsy-moth into Massachusetts! I remember well the attempt of the Commissioner of Agriculture, under President Lincoln, to introduce the Mexican honey-hornet into this country—an insect whose saw-like mandibles are so admirably fitted for piercing the skins of all kinds of fruits. Fortunately the colony of these insects, which was established in one of the public parks of Washington, perished after the first hard frost. The late Samuel Wagner, editor of the *American Bee Journal*, pointed them out to me before they died.

Dayton, O., Aug. 13. L. L. LANGSTROTH.

WILLIAM GUNN MALIN, A FAITHFUL STEWARD.

Mr. Malin entered the institution as Clerk, March 29, 1824, and remained in its service for nearly sixty years. At the expiration of this time, on account of his advanced age, he was relieved from duty by the Board, which, in consideration of his faithful, devoted, and long service, pensioned him, and offered him a home in the hospital during the remainder of his life. He died of pneumonia, in his apartments at the Hospital, August 2, 1887. When he first came to this country as an immigrant from England, in 1823, he was obliged to work as driver of a brewer's wagon; and out of his savings he returned, before the end of a year, to his parents, his passage-money to America. He was fortunate in finding more congenial occupation in the Hospital. He numbered the books in the library, and made a catalogue, which he presented to the Board, January 26, 1829, and it was ordered published. In September of the same year it was issued, together with an introductory sketch, also prepared by him, of the history of the Medical Library. Two years later, by direction of the Managers, Mr. Malin compiled a small work entitled, "Some Account of the

Pennsylvania Hospital; its Origin, Objects, and Present State," which was also published by the Board. In 1840, when the Department for the Insane was opened in West Philadelphia, he was appointed Steward, and assisted in organizing the new administration. Nine years later he was made Steward, and practically Superintendent, of the Department for the Sick and Injured, which position he filled until 1883, when he was retired from active duty. About this time he was complimented by having a dinner given in his honor by the Association of Ex-Resident Physicians, many of whom had been associated with him during his long service in the institution. The library was used in which to hold the banquet; there were flowers and speeches, and the faithful Steward occupied the seat of honor. On this occasion a life-sized portrait of Mr. Malin, in oil, was unveiled and formally presented to the Hospital by the Association of Ex-Resident Physicians.

William Malin, the grandfather of Mr. Malin, was a resident of Preston Capes, Northamptonshire, England, where his son, John Malin, was born, who removed to Woodford Halse, and married Mary, the daughter of John Gunn, of Banbury; of this union William G. Malin sprang, a scion of good English stock. His parents were religious, and of Moravian connection. The grandfather on the mother's side was a descendant of Olaf Rolfson, a noted Viking and Vice-Jarl under the Earl of Orkney and Caithness; the youngest son of the adventurous Norseman was named Cunni, and hence the surname Gunn arose in the family that claimed through its founder relationship to the "Lords of the Isles" and "Kings of Man," famous in story and song.

William Gunn Malin was born in Woodford, near Byfield, Northamptonshire, England, November 7, 1801; he had scant schooling at Eydon, as his father intended to equip him for no higher station than that of market-carrier to Banbury and Deventry. Being impressed with the idea that he was destined for better things, he took passage in a sailing-ship, the "Massasoit," for Baltimore; but a storm drove the vessel into the port of Boston, by which means he providentially escaped the danger of yellow fever which was then epidemic in his original place of destination. He made his way to Germantown, now a part of the city of Philadelphia, and found occupation temporarily. A year later he considered himself most fortunate in receiving the appointment as Clerk, and subsequently was appointed Librarian.

His handwriting was very legible, and so regular that it was almost like engraving. Mr. Malin was largely self-educated, and was a modest and diligent student. He loved books, especially old black-letter English volumes, preferably Bibles and works relating to the history of the Moravian Church, of which he was a life-long consistent member. Much of his leisure time was occupied in poring over his choice possessions, which included works in Latin, Danish, Dutch, French, German, Italian, with which he made so much progress as to be able to translate the portions in which he took the most interest. At his death he bequeathed his library in trust for the Moravian Church, at Bethlehem, Pennsylvania; and it was regarded as a particularly valuable collection, since it possessed unique copies and rare works on the early history of the Church, the fruit of many years' patient studying of catalogues and

correspondence with dealers in all parts of the world, and the expenditure of money which cost much self-denial to save. As a result of his wide reading, Mr. Malin was a well-informed man; and, although he did not seek conversation, being rather reserved in his manner, yet he showed by his remarks that he had good judgment, and possessed a mind conversant with a multitude of subjects in art, literature, and popular sciences.

In his intercourse with Managers and Physicians he was always most courteous, cheerful, and cordial in his manner. His long association with the physicians of the institution was unmarred by any unpleasantness; in fact, in consequence of his uniform amiability of demeanor many of the residents and members of the medical staff became his life-long, cherished friends. Mr. Malin, soon after his transfer (in 1819) to the Pine Street Hospital, married Anna M. Langstroth, sister of L. L. Langstroth, who died in less than a year afterward, and without offspring; he did not marry a second time.

Although Mr. Malin's tastes did not incline toward medical studies, he showed great interest in the treatment of the insane. As the result of his observations, he presented to the Board of Managers, in 1828, an article on the necessity of providing a separate asylum for the insane; and, again, in 1834, a paper on employment of the insane. Mr. Malin's views possessed so much originality and force as to lead the State Committee on Lunacy to publish these papers in its annual report for the year 1884. Copious extracts have also been made from these papers on another page of this history.

Mr. Malin was buried August 5, 1887, in the Woodlands Cemetery, Philadelphia; and his collection of historical and Bohemian books have a permanent resting-place in the library of the Moravian Brethren's Church, at Bethlehem. His portrait is in the hall of the Hospital, just at the entrance of the office where he lived for so many years.

[Perhaps our readers wonder what the life of such a man, however good and noble, has to do with bee-keeping. As prepared by father Langstroth it seems to be a sort of introduction to a very important old letter on a subject touching one phase of bee-keeping upon which comparatively little is known. The letter was written to Mr. L. long ago, as you will see; and as it has never seen the printed page before, I am sure it will be read with interest now. But before I give you Malin's letter I will here give an extract from Mr. Langstroth's letter concerning it.—Ep.]

Dear Ernest:—Since I sent you Mr. Malin's letter I find that there is a very full discussion of the question whether the honey-bee was indigenous to this continent, by Prof. A. Gerstaker, of Berlin, who sent it to Wm. Wagner. This article was translated by Samuel Wagner from the German, and published in Vol. II. of the *American Bee Journal* for July, 1866. Mr. Malin's letter to me was written in the fall of 1864, and antedates Gerstaker's essay; still I think that you will do well to publish Malin's letter; but I thought it only right to call your attention to Gerstaker's essay.

L. L. LANGSTROTH.

Dayton, O., Aug. 1.

WAS THE HONEY-BEE INDIGENOUS OR NOT IN THIS COUNTRY? A CAREFUL REVIEW OF ALL THE EVIDENCE.

PHILADELPHIA, Sept. 24, 1864.

Rev. L. L. Langstroth:—My Dear Brother:—I have consulted the paper of Dr. Barton, to which you re-

ferred me, and find that his conclusion, from all the evidence attainable in his day (1792), was precisely that to which my researches had conducted me; viz., that the honey-bee was not native, but was introduced from Europe. Had I known of Barton's essay it might have saved me some trouble, as he refers to, and quotes, sundry authors from "Purchas his Pilgrim," down to Bartram, which I had some trouble in hunting up. He, however, adds what I think a material fact as regards our inquiry; and that is, that none of the Indians occupying these regions had any original names in their languages for the bee or its products; and Elliot, when translating the Bible, was, in consequence, obliged to use the English names with Indian terminations. Subsequently, when the Delawares became acquainted with the honey-bee they applied to it their name for the wasp, and called honey by a name which signified the "sweet or sugar of the wasp;" and wax by one which meant the "fat, grease, or tallow" of the wasp.

I find that Barton's paper was prompted by one written by the Rev. Dr. Belknap, who contended that the honey-bee was native on this continent, in its southern portions, at least in Mexico and Cuba. I have read Belknap's paper; and have consulted the authorities he quotes, and am quite satisfied that he was wrong. Even he, however, admits that our insect was not found north of Florida, or the southern portion of Georgia. He also says, "There is a tradition in New England," the authenticity of which he was unable to trace, "that the person who first brought a hive of bees into the country was rewarded with a grant of land."

Further, Mr. John Josselyn (whose book I have also consulted), who was in New England in 1638, and again in 1663, in some account of his voyages published in London in 1673 thus speaks of the honey-bee: "The honey-bees are carried over by the English, and thrive there exceedingly."

The Rev. Mr. Heckewelder assured Prof. Barton that, although he had seen the true honey-bees wild in various parts of the United States at some distance from settlements, he was always assured by the Indians that these insects were not known in these countries before the whites began to settle them. Barton adds that it is very unlikely that these Indians could be mistaken on the subject, as they are by no means incurious observers, and are as fond of honey as the bears are.

Mr. Wm. Bartram, who traveled in West Florida in 1775, informed Barton that he was shown as a curiosity a bee-hive, the only one in that extensive country, introduced there from England when the English took possession of Pensacola in 1763. He had seen the honey-bee wild in East Florida, but was satisfied from his inquiries that it is not a native of the country.

Barton says, "The honey-bee was not found by the first settlers in Kentucky; but about the year 1780 a hive was brought by a Colonel Herrod to the Rapids of the Ohio, since which time these insects have increased prodigiously." Was this not the probable origin of those seen by your octogenarian friend?

The only authority quoted by Dr. Belknap for the probable existence of the bee in any part of the United States is the finding of a single pot of honey by the expedition of DeSoto at a place called Chiaba, on an island surrounded by shallow water, supposed to be on the upper part of the Mobile River, in Southern Georgia. I have referred to the narrative, as translated in Purchas, and find that this was the only honey seen or heard of by the expedition,

* This refers to information given me by an octogenarian clerk of the courts, residing, in 1857, in Hardinsburg, Ky. He recollected seeing honey-bees at so early a date in Kentucky that he had always taken it for granted that they were natives there.

I had read somewhere that, at the time the honey-bees were first introduced in America, the Norwegians were not troubled by the bee-moth (*Tinea mellonella*). As the bees in New England were not infested by this moth until 1805, it would seem quite possible that the first bees imported into New England might have come from some country where this pest was not known, and not from any part of the English Isles where it had been so long known. (See Dr. Kirtland's account of its first appearance near Boston, Mass., in my work, "The Hive and Honey-bee," 3d edition, page 240.)

L. L. L.



Yours affectionately,
S. L. Langstroth

which met with no bees. The granaries and store-houses of the natives were constantly ransacked by these needy Spaniards, from June, 1539, to July, 1543; and Barton pertinently remarks, "Had the honey-bee been a native of the countries which were the scene of DeSoto's villanies, the valuable products of this insect would have been frequently met with, and the bees, in territories pregnant with a profusion of nectarous plants, would have been seen very often, and in great numbers."

In addition to the above I may add that I have carefully consulted the narratives of many early travelers, from Father Hennepin down, and find no mention of honey having been met with on any occasion than as above stated. Had the Indians possessed honey would they not have set it before some of their guests? and would the latter, who mention every thing else they met with, have forgotten honey?

In conclusion, as no one pretends that the honey-bee was found in New England, as Josselyn, who, in 1638, must have known the first English settlers, and been familiar with their doings here, says expressly that they introduced our beloved insect, I think we may very safely dispense with the Norwegian theory of their introduction, and assume that the *Apis mellifica* is a valuable European insect for whose introduction and naturalization here we are indebted (as for many other blessings) to the people of the Mayflower, or their immediate followers.

WM. G. MALIN.

A PLEA FOR FIVE-BANDERS.

ARE THEY HAVING FAIR PLAY?

By A. Norton.

It seems to me that a great deal of hastily considered comment is being passed upon the five-banded Italians, and that undeserved denunciation is being heaped upon them. The fashion having been set, so to speak, by certain plain statements from the Roots, which in themselves are reasonable and moderate, it seems now that the majority are following the example only to outdo it, and that those who like the five-banders do not dare defend them. Let this race have fair play; and let all who find them as good as regular Italians (I don't see why they should be any better) give public testimony to that effect.

The claims coming from the Home of the Honey-bee, so far as I have seen them, are simply that some strains of five-banded bees originated in Cyprian and Syrian crosses, and are irritable, but that other strains are doubtless pure Italians, and as good as any. That is certainly all right. But now there are letters from certain persons in divers journals, claiming that these bees are not hardy; that they do not winter well; that the queens are not prolific; that they are not good honey-producers.

It may be safely stated, and depended upon, that you can not breed any points or characteristics into a race if you do not find a tendency that way to begin with; and you can not well breed a characteristic out unless there is originally a tendency to lack that characteristic to begin with. If the few years' breeding of this particular strain of Italians has already made them so inferior in so many ways, it only proves that the original three-banded parent race is so widely variable and unreliable in its characteristics that one can not depend upon them uni-

formly to be desirable bees. Even if a breeder should set out systematically to breed three-banded Italians down to inferiority as to honey-gathering, prolificness, and wintering, by purposely selecting the poorest in those lines, if the race is as uniform as we are led to suppose it to be, he should make slow progress because of not easily finding any very inferior stock to begin with. But in breeding five-banded stock the worst that can be said is, not that breeders purposely breed out good qualities, but merely that they think of nothing but color, and all other points pass unnoticed. But the mere fact that a certain queen's workers show more yellow than those of other queens, does not imply that they are either better or poorer in useful qualities than other Italians. They might incidentally be a little better or worse; but the main chances are that they would be about the same. Hence, in breeding from such a queen the stock could not deteriorate.

Now, taking the percentage of chances in all queen-breeding for five-banded bees, unless the parent three-banded stock is extremely variable and unreliable, I don't see how, in the few years so far past, the strain could have become materially better or worse than the regular stock. Does in-breeding cut a figure now with the large number of five-band breeders? How is it, then, with persons who advertise superior strains of three-banded stock (several such advertise in GLEANINGS, and hence we must assume their advertisements to be honest)? How can they perpetuate their superior strains without in breeding? If they mix in any of the ordinary outside stock, they must dilute and lose the superior quality of their own strains. One advertiser in GLEANINGS has bred Carniolans for yellow color, and yet has made an improved honey-gathering race of them. To change Carniolans to uniformly two or three banded bees is a greater change than that from three-banded to five-banded Italians. In-breeding and other detrimental influences seem, however, to be lacking.

While so many have dropped into the fashion of denouncing five-banders, I find some who praise them highly. Ira Barber, of New York, in a recent issue of the *American Bee Journal*, pronounces them, as the result of a few years' experience, superior to any others. (I should hardly expect them to be superior, however.) W. L. Coggsball, of Eastern New York, speaks highly of them. These persons have no queens to sell. I have had a limited knowledge of them; but that limited experience, so far as it goes, shows them to be gentle and industrious, with strong prolific queens. I find them working remarkably well in the scarce period of the California dry summer, late July, August, and September, and the queens keeping 12-frame hives, L. size, full of strong, active, yet gentle bees.

Looking among those who condemn them, I do not find any thing more striking than I notice in the difference between "Reports Encouraging" and "Reports Discouraging," where we find, from localities in the same State, and often quite near together, directly opposite reports. These differences are laid mostly to the season. But if any of the persons making them should have happened to be trying a new strain of bees, the latter would have come in for a large share of the blame or praise. Note what the majority of German bee-keepers say regarding blacks vs. Italians. From their preference we might think that nature, in breeding for three yellow bands, had produced an inferior race.

I do not go principally for fancy in bees. No bee-keeper, large or small, if he is sensible, will want less profitable bees because they look pretty. But if any one would not choose a handsome race in preference when the dollars and cents come in just as well, then he is lacking in a taste for the beautiful; and while we may not expect to cultivate taste in him, we are not expected to give it up ourselves.

I should like to have all, who can give facts to show that five-banded bees do not differ as to profit from three-banded, to send them in to add to what we already have, and see how much of a showing can be made. If these facts really can not be produced, then I will say, stop breeding them.

Monterey, Cal., Sept. 4.

[No publisher has tried harder to give the five-banded fair play than we. While I have not published all the adverse testimony, I have given, so far as I know, all that was in their favor. I myself at first felt quite kindly disposed toward them; but when I saw repeatedly their bad temper, their lack of hardiness—when, indeed, this was further corroborated by letters continually, with few exceptions, I felt that it was simply the duty of GLEANINGS to set forth the facts. You may show *why* yellow stocks should not be any worse; but good theory on this point can hardly offset real practical observation of what they are. I have letters from two queen-breeders who say that, as soon as they get rid of them (the five-banded) they will sell them no more. One of these men says he has tried stock from all of the best breeders, with results largely the same. Another blames us for not scoring the yellow stock more than we do. These men do not wish their names used, because they still have stock to sell.

I don't think myself that the ordinary stock of Italians is invariably uniform; but the point is right here: It is so difficult to breed real five-banded, that, in order to get four, and perhaps five, every *other* point is very liable to be sacrificed. It is not so easy to select out certain desirable qualities so that they may be plainly shown in the daughters of a breeding-queen. If the goal is hard to reach, is it not better that we take that which is the most desirable—that quality or qualities that will bring to their owner the most money? Color may bring the most money to the breeder; but to the honey-producer, nothing. I don't believe it is practicable to breed for every desirable quality at once. The most we can expect to get at one time, in bees, is energy, hardiness, and gentle-

ness, from a prolific mother. If the same time and thought were expended on these rather than on something that appeals to the eye, we should see more honey.

Of course, if we can have color at the same time with these other qualities, no one will be more pleased than I; but so far I don't see a very good combination that is from the progeny of the average run of yellow stock.

Later.—Since writing the above, neighbor Vernon Burt, who lives two miles north of us, reports that his five-banded were good honey-gatherers. We have a couple of colonies at our out-yard that have done well also. But if I am any judge these seem to be an exception. —Ed.]

SECOND-HAND SQUARE OIL-CANS.

HOW TO PREPARE THEM FOR HONEY; ALSO
SOMETHING IN REGARD TO THE
WATER WE DRINK.

By S. S. Butler.

I for some time have had in mind writing an article on cans, new and old, for storing honey. After a 20-years' experience, using thousands of cans, I am better satisfied with good oil-cans than to buy new ones. I have bought Lower California honey in new cans that were made of poor or lead tin, and so poorly put together that nearly all were in a leaky condition; but good oil-cans, always rejecting those that are rusty inside, being crimped at the seams, very seldom leak there, and, if well cleaned, I like better than the new ones made on this coast. I give 8 to 10 cts. for them. I melt off the four faucets by setting four cans, with the corners that have the faucets, together, putting a shovel of hot coals on them. A good worker can clean about 100 in a day by putting in a handful of unslacked lime in each, with 3 or 4 quarts of boiling water. After it is slacked, rinse it well, and afterward rinse out twice with cold water, washing them twice with lime. In that way it will clean them perfectly.

Having noticed your article on water, and in other places where you have spoken of nice cool pure spring water, I should like to say a word about nice pure spring water. I have made pure water a study for about 30 years, and have made up my mind that one can hardly ever find a spring or well of perfectly pure water. I have a fine spring. Two years ago I put in a cistern just where the spring was, going about 30 feet above, cutting off the several veins of water, and running them into the cistern. We dug down to hard clay, about 10 feet, through decayed vegetation, rotten roots, etc., that smelled almost as bad as a pig-pen. Pure water? Ugh!

I have invited people to come and see my simple apparatus that I have used for over 20 years on our stove to distill or condense our drinking-water—the only pure water.

We should purify the water we use outside, not inside our bodies. Our bodies being composed of over seven-tenths water, just as much as

we need pure air, just as much do we need pure distilled water, which is the only pure water. Water is the great cleanser, and is not pure, no matter from what source. Even rain water collects impurities and microbes as it descends. Water from lakes, springs, creeks, and rivers, has earthy salts, carbonate of lime, various minerals, decayed fish, worms, snails, and lizards, millions of microbes and animalculæ. The excrements of fish, worms, and the thousands of insects, birds, and animals, that live in and frequent the water, are found in it. A dead frog or rat occasionally comes up in the well-bucket. Do you think such water is healthful? All impurities are left behind when water is turned into steam, and that condensed or turned into water, and in no other way can one get pure water. There is no filter that will take out all impurities. My condenser gives us drinking-water while getting our meals.

Los Gatos, Cal.

[Friend B., your instruction in regard to using second-hand oil-cans will probably be valuable to many of our readers; and I am greatly curious to know about that home-made apparatus for getting distilled water. Can't you describe it, or make a rude picture of it so we can have it illustrated? In many localities I suppose such a method is almost the only one for getting real nice water to drink.—A. I. R.]

THE DARK AND BRIGHT SIDE OF APICULTURE.

THE "OTHER SIDE" TO THE DARK SIDE PRESENTED BY FRIEND DOSCH ON P. 737.

By J. P. Shaw.

In reading GLEANINGS last evening I noticed the article on page 737, written by L. A. Dosch, of Miamisburg, O., very discouraging indeed. Now please excuse mistakes, as this is my first writing. I live not quite three miles from Mr. Dosch, up the Miami Valley. Three years ago I started with one hive; increased to ten, but got no honey; wintered through all right. From six of those ten last year I got 280 lbs. of section honey; increased the other four colonies to 15. Starting in last winter with 21 colonies I came out in the spring with in fair shape—a loss of two colonies.

Now for this dry season. I started 12 colonies to working on sections, and got 400 lbs. of section honey from them, leaving plenty for winter. The other 7 colonies increased to 15 last year. With 6 colonies I got 280 lbs.; and my neighbor, with only a fence between our bees, got 10 lbs. from 7 colonies. I think there is a great deal in the management of bees. So you see this locality is not so bad after all. Sweet clover here is the main honey-flower. As dry as the summer has been here, it grew from 5 to 6 feet high, and the bees just swarmed upon it. I use the eight frame L. hive, and I

contract down to six frames at the commencement of the honey season, and feed a little in the spring at the right time. I do not think this locality so bad as friend Dosch does. I guess I shall have to go down and buy him out.

West Carrollton, O.

J. P. SHAW.

[A difference of only three miles sometimes makes quite a difference in the honey; still it is not improbable that your superior management accounted largely for the difference in results. When a man is utterly discouraged, as friend Dosch is, he is not apt to put the best foot forward; in other words, use the best and most economical management.—Ed.]

ISRAEL'S CROSS-EYED BEES.

FOUNDATION IN SECTIONS VS. FOUNDATION IN BULK OF THE SAME AGE; AN INTERESTING AND VALUABLE EXPERIMENT.

By J. P. Israel.

I have for many years enjoyed the reputation of being the boss idiot of Southern California. No man so far has questioned my title or contended for the championship. But the bees this year have stripped me of my honors, and I have yielded up to them the belt so long and honorably worn. This is how they went about to do it.

When the time came, in the spring, for putting on sections, I found I had more than enough, with foundation already in them, to cover my whole apiary. This foundation had been put in these sections more than a year before; and on our failure to get honey in 1894 the sections were stored away. I thought I was fortunate in being all ready for the honey crop, and piled on the sections liberally. Ten days afterward I looked over them to see how they were building. *Every* colony that had gone into the upper story was building *crooked*! Their favorite way of building was *crosswise* the sections, as if they wished to bind them together with iron bands. Crosswise, cat-cornered, around the corner and back again they came. But the foundation, they would not touch. It was pure wax, made in this apiary, and run out by myself. What could be the matter? I sat down on a hive to meditate.

"Here," said I, "is a whole apiary gone mad crosswise! I will get at the true secret of this state of affairs, even if it takes me all summer."

I got my microscope and examined the bees, and, lo! the secret was out. The whole apiary was *cross-eyed*. I stood aghast with astonishment and consternation. Could it be possible? Oh for a carload of "them fellers" from the East who know it all, to tell me how to breed back again to straight-eyed bees! I could see through the crooked part of it very plainly. When a bee got on to a piece of foundation to draw it out, being cross-eyed he was actually not there at all, but around the corner, build-

ing a cross-section between the two sheets of foundation. Don't you see it plainly?

But to make assurance doubly sure I tested my microscope by a first-class instrument, and found that it was *my glass* that was *cross-eyed* instead of the bees. So I had to seek a solution of this extraordinary freak in another direction. This foundation had been suspended in the sections for more than a year. Might it not, in that time—being in single sheets—lose some of its essential oils, and be unfit for the bees—too hard and flinty? I had more of this same foundation (in bulk) which I believed to be good. So I took the sections off the whole apiary, and replaced the foundation with that which was kept in bulk (but of the same lot), and the bees went at it and built as straight and beautiful combs as ever.

Now, to me this proves two things: 1. Foundation suspended in sections will not keep a long time without losing some of its "internal arrangements" which are necessary for the bees. 2. Foundation in bulk will keep a long time, retaining all its elements intact which are required for its successful working into comb. So you can notify that "carload of fellers" not to come all at once, but three or four abreast.

DO BEES EVER GATHER WHITE-SAGE HONEY EXCLUSIVELY?

Well, Rambler has knocked all my ideas in regard to white sage into pi. If there is one single spot in all California where bees gather honey from the white sage exclusively, I did not know it. It must be a poverty-stricken place for other flowers, for the bees *will* work on other flowers while they are working on the white sage. It is different with the black. They will touch no other flowers while the black sage remains in full bloom. I did not believe that any man ever secured a single pound of pure white-sage honey in all California or any other place. The black sage comes out first, and, while that lasts—although the ground is carpeted and the chapparal is interwoven with flowers—the bees will stick to the black sage. Thus we get the first half of our crop from the black sage. Then the bees change to the white sage and the thousands of flowers that bloom with it. The consequence is, that the honey is always a mixture—amber, some light and some darker.

But Rambler has found a place away back in the Sierra Nevada Mountains where the bees revel in the white sage, and the white sage alone. How I should love to taste it and compare it with pure black-sage honey!

Escondido, Cal.

[Experiments made recently by the Michigan experiment station, as well as the testimony of competent bee-keepers, go to show that old foundation is as good as new. But I could not understand *why* a few observers equally competent should think it was not; but in the light

of your experience I think I understand. The last mentioned, those who reported adversely regarding the old foundation, tested it probably when it had been a year in the frames or sections before giving it to the bees to be drawn out. Of course, being exposed to the free circulation of air it would dry in a way that the same article in the bulk would not. If this is true, and it certainly is reasonable, friend Israel has called attention to a valuable fact worth considering. I should like to hear from others on this point.—ED.]

RAMBLE 141.

LOST IN THE WEED-PATCH.

By Rambler.

After passing Tulare we were again in an uninhabited country. Away to the east, the Sierras present a dim outline against the horizon; to the west, the Coast Range presents much the same appearance; between them, a broad prairie at least 100 miles wide, many portions of it having all of the qualifications of a desert. The portion we are now passing over is dry, parched, and not a tree or blade of green vegetation to relieve the monotony.

O solitude! where are the charms
That sages have seen in thy face?
Better dwell in the midst of alarms
Than reign in this horrible place.

To my notion, solitude can be endured and even enjoyed where there are running brooks, trees, rocks, and some animal life; but out on a barren plain, please excuse me. Little railroad stations loom up occasionally. We are just about out of sight of one, when away ahead of us another begins to rise as it were out of the desert. Here at the little stations of Poso or Kimberlena would be just the locations to start experimental queen-rearing apiaries. The isolation would be complete, and the fertilization of the queen with any choice strain of drones could be easily controlled. I would suggest that the new woman, unmarried and of uncertain age, here organize a colony as outlined in Tennyson's "Princess," where dogs, cats, pigs, etc., are all females, and the death-penalty is the fate of all intruding males. I am afraid, however, that the scheme would not work; for in queen-rearing, drones (the male bee) would have to be tolerated. My suggestion, though, is worth acting upon so far as queen-rearing is concerned, and I hope some one will act, and reap fame and fortune.

It was upon this broad and barren plain that we had the pleasure of witnessing that curious natural phenomenon, the mirage. All along the distant western horizon there appeared a narrow belt that glistened and shimmered under the mid-day sun, and for a time we were deceived with the idea that we were in sight of the shining surface of a lake or river. The same appearance soon presented itself in our

rear, and beyond the shimmer we could see the far-away stations we had passed in the early hours of the day, which had been some time out of sight; and then it dawned upon us that we were in the land of the mirage. We could seemingly look so far away that it appeared like a beautiful fairy-land; and the dancing of the sunbeams seemed like the flitting to and fro of the fairies. It was a pleasure for me to imagine such a land. I was lost in the contemplation of its beauties; and, indeed, if this were but the vestibule of heaven I longed to be there.

My intensely practical companion, however, thought we'd better move on, and my airy ideas came down with such a sudden thud when I thought of his ten angels that my tongue refused utterance until we had entered the thriving town of Bakersfield, and the mirage had disappeared. Quite a number of bee-keepers live within trading distance of this city; and the conditions for honey production are much the same as we find further north in Tulare and Fresno Counties. We could not hunt up these good men, for we were now upon a genuine stampede for the south; cool nights, threatening skies; and still between us and our home the frowning Tehachapai Mountains, and the little less frowning San Fernando range.

We arrived in Bakersfield Saturday afternoon; and, after laying in a new supply of provisions, we resolved to push right along and travel all day Sunday. We were aware that "a Sabbath well spent meant a week of con-

ed ourselves by a weed fire, and in our sleep dreamed of weeds.

Soon after breaking camp Sunday morning an unforeseen circumstance presented itself—Reina went lame, and our progress the rest of the day was extremely tedious. The drive during the forenoon was relieved by seeing now and then—more often then than now—a vacant cabin. At one place among the weeds we were surprised to run across a small apiary of about 20 colonies. The bees were at home, and had a committee out to receive company in their aggressive way; but the cabin near by was vacant. We knew it was vacant, because we could see through it about as easily as we can see through an old-fashioned Eastern corn-crib, and thus a weed-patcher lives. We did finally find a good dwelling with an occupant, and he gave us the gratifying intelligence that we had traveled twelve miles further than necessary. He kindly pointed out the road which we could see for twenty miles ahead of us, leading toward the Tejon (Tá-hone) Pass. Not a rod of this country is interesting; and if we were to choose a route for scenery it would not be in the upper San Joaquin Valley.

Water is a valuable element here, and is plentiful after digging very deep into the earth. An Italian weed-patcher loaned us the use of his well, and gave us a lesson in hydraulics. A large coil of rope lay upon the ground; the end ran over a pulley to the bucket. When bucket and rope, after a long paying-out, had disappeared in the well, our Italian weed-patcher pointed to a path that led out toward Bakersfield, and told us to take the end of the rope and travel that way, and pull. He was to fire a gun to let us know when the bucket was up. Wilder and I started for Bakersfield, 20 miles distant, with the rope over our shoulders. We traveled some time conversing pleasantly by the way, and imagined that we looked like the pictures of Samson laboring under the gates of Gaza. After a while we began to speculate upon the nearness of that bucket to the surface.

It was heavy tugging; all of a sudden the weight became so laborious that we desperately tied the rope to a weed and returned to the well. When we took in the situation we were just mad. That miserable Italian, while waiting for the bucket to arrive, went to sleep. We shook him up lively, and, after yawning and looking at his well, and seeing the water spilled all around, he went tearing mad too.

"Zee here!" he shouted; "yous alfiert Americanos, yous pull pull. Zee here! gone pottom of zee well; pull up; py gar, yous pay zee hunner tollar—zee hunner tollar, I zay."

Now, we had not the remotest idea of pulling:



"WE STARTED FOR BAKERSFIELD."

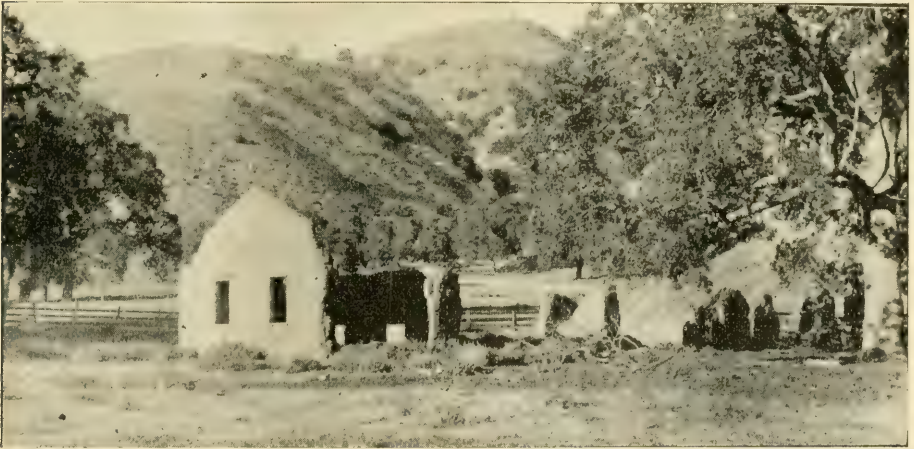
tent, and a joy for the toils of the morrow;" and in all of our long journey we had traveled on Sunday only where the necessities of feed for our horses compelled us to do so for a few hours. This time, soon after passing our Sunday-travel resolution, we left Bakersfield, and, among the multitude of trails across the plains, we easily succeeded in getting upon the wrong one. Our next mishap was to get directions from a drunken teamster who sent us into what is locally known as the weed-patch, and still further off our route. After toiling through the sand until long after dark we camped among the weeds; boiled our coffee, and warm-

up the bottom of his old well; but this being a day of untoward events we expected almost anything to happen, and were not surprised. We felt guiltless in that respect, for he was to blame for going to sleep, and we so convinced him.

Now, if the foregoing seems to be something in the line of an allegory, it goes to show the many petty phases in which an Italian will grasp to turn a dollar to his own benefit. Those who have never met an Italian only as an organ-grinder, as we know them in the East, do not understand what thrifty people they are. The climate of California, so like that of Italy, attracts thousands of them to this coast, and they will settle down in such a place as the weed-patch, or in a worse place, where an American would starve, and make a living and accumulate some wealth besides. Their methods of getting the dollar are not altogether

hired men, he was entertaining a convivial Irishman who also had bachelor quarters in the pass beyond. I would have taken this genus *homo* to be a Scotchman; but Irish he said he was, and Irish it is. He entertained us with song and story, and it required but little observation to teach us that he was a bookish man, a lover of nature, poetry, and his fellow-man. In the morning, when he departed for his abode, he informed us that our route lay directly past his door, and he gave us a cordial invitation to enliven the lonely hours of the evening in his cabin.

We were now in the extreme southern and upper end of the great San Joaquin Valley. From Merced we had followed it continuously for nearly 200 miles, and no one can ever appreciate its greatness until he travels through it with a camping-outfit. There is room enough here for a grand empire. We can drop into



RUINS OF FORT TEJON (TAHONE).

honorable at all times. The Italian woman is as sharp as the man at a bargain and much sharper with the tongue.

Whatever might have been our vexations during the day, we were most fortunate that evening in finding a camping-place near the cabin of a young American bachelor rancher. Here, instead of going several miles, more or less, into the ground for water, the precious fluid was drawn several miles in barrels, and we were able to get a supply without much vexation on our part.

In the evening we were made welcome to the warming influence of the cabin-stove. We have found that a large number of bachelor ranchers outside the ranks of bee-keepers usually blacken their floor and mop their stove; but this young American reversed the order, and the cheerfulness of his cabin was that much enhanced. Besides his two bachelor

this valley the States of Maine, New Hampshire, and Vermont, and then have some room to spare. We leave it now, pleased that we have been permitted to traverse its waste places, its fertile lands, and its populous cities. As indicated around Selma, Hanford, and Bakersfield, the possibilities for honey production are great. In the near future, under the magic influence of irrigation, hundreds of thousands of people, and among them thousands of bee-keepers, will here find prosperous and happy homes.

We leave the great valley through the Tejon Pass, and encounter in its narrow defiles the ruins of old Fort Tejon. In early days this was an important strategical point; but now, in the poetical language of our Irish poetical friend,—

We stand to-day amid the ruined walls

Of what was once the famous Fort Tejon.

Where lovely women graced the princely halls;
 Where brave men answered to the bugle-calls;
 Where war-steeds chafed impatient in their stalls;
 Scarce aught remains but scattered brush and
 stone.

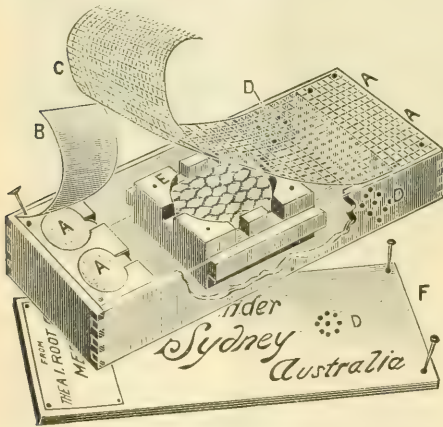
MANUM'S LONG-DISTANCE MAILING-CAGE.

THE USE OF HONEY IN COMBINATION WITH
 CANDY.

By A. E. Manum.

I mailed you a few days ago one of my long-distance mailing queen cages for your inspection and criticism. I was led to do so by receiving two of *your* long-distance queen-cages, already provisioned, addressed, and stamped, with a request that I use them for mailing two queens to one of your customers in Australia.

My first thought was, upon receiving your cages, that I would not use them, but would use mine instead; but upon further consideration I concluded to use them just as you had them prepared, inasmuch as I had an order for queens direct from Australia. I thought it a grand opportunity for me to *test* the merits of the two cages. One of the queens sent in your cage was the same age, and an own sister of the one sent in my cage, and, to all appearance, the two queens were alike. I am thus particular in giving you these points, that you may join me in watching results.



The reason why I hesitated to use your cage was because I had tried the same cage before for mailing queens to Australia, and failed in my attempt to get queens there alive; and as orders for queens continued to arrive from that source, I decided to attempt the construction of a cage in which I could safely mail queens to the distant land above mentioned; and the cage I sent you is the result of much study of the requirements of the bees while on so long a journey. I took into consideration the changes in temperature they would necessarily experience on that long journey.

You will notice that, in the center of the cage, there is a compartment into which a small piece of comb honey is placed, there being 6 openings, or passageways, to this compartment, so that the bees can enter it from four sides, and partake of honey whenever they desire. There are also four places—two at each end of the cage—for the reception of the ordinary (sugar and honey) queen-candy, which I make as hard as possible with my hands.

My object in using honey in this long-distance cage is to give the bees a small ration of their natural food, which I anticipate will last them a good portion of the journey; but should it fail to do so they have the candy to fall back on. The honey is placed in the center of the cage in order to balance the cage, and also that the bees may have access to the honey from each chamber as well as to the candy; hence they can partake of either candy or honey from whichever chamber they may happen to be in. There are also four passageways through which the bees can pass from one chamber to the other. Each chamber is $2 \times 1\frac{1}{2} \times \frac{3}{8}$ inch, making ample room in each chamber for 75 or 80 bees, and food enough in the cage to last at least 60 days. The outside dimensions of the cage are $7\frac{1}{4} \times 2\frac{1}{4} \times 1\frac{1}{8}$ inch, and it weighs, when ready to mail, 5 oz., the same as your cage.

Now in regard to your cage, I consider the *one* chamber too small for the number of bees I consider desirable to accompany the queen on so long a journey, since it often takes 40 days for them to reach their destination. And, again, in your cage the bees are obliged to subsist entirely upon candy. I am aware that yours is much the cheaper cage to make; but when we warrant the safe arrival of queens, it is to our advantage to use the cage that will carry the greater number through safely, because it would require many cages to equal the loss of one queen. And, on the other hand, if we do *not* guarantee the safe arrival of queens, it is to our advantage to look after the welfare of our customers. It always gives me great pleasure to receive cheerful letters from my customers, as I am sure it does you.

Bristol, Vt.

[This cage, I must acknowledge, is a better one than the one we have been using for the same purpose. Indeed, I was so well pleased with its general construction that I made arrangements with friend M. whereby we could manufacture and use it for our own business.]

Instead of being made of a solid block bored out, it is made of strips of wood dovetailed together as shown. This construction secures at once both lightness and strength—very important factors, by the way, in an export mailing-cage.

Like our export Benton it has holes at each end to take the prepared candy food, and in addition has a little chunk of good sealed honey secured in the center. This was, as I judge by the sample before me, cut out the required size to fill the oval hole in the block at E, and was then given to the bees just long enough for

them to lick up all the drip. It may then be slipped into the block, and secured to the block E by means of a little melted paraffine or wax, painted along the edges of the comb in contact with the wood.

B is paraffine, or waxed paper, to cover the candy A, and is the same idea that is used on our export Benton.

Of course, the use of sealed honey in queen-cages is very old; but how often it has happened that we have gone back to some *old* things! In this case we combine a new and an old idea together. If the candy fails, the honey is at hand to relieve the situation.

A year ago one of the friends in Australia, I forget his name, urged the use of a little piece of comb honey, as he had tried it with success. Well, Manum, in this country, got ahead of us, and I guess has made a better job of it.—ED.]

THE RIGHT KIND OF FRAMES.

THE V EDGE TO HOFFMAN FRAMES; SELF-SPACING FRAMES; OBJECTIONS TO THE STEPHENS SPACER; FURNITURE-NAILS NOT ENTIRELY SATISFACTORY; WIRE FINISHING-NAILS PREFERRED.

By Dr. C. C. Miller.

While the controversy has been going on as to the proper size of hive, I've been trying to settle on a frame—not the *size* of frame, for the size $17\frac{1}{2} \times 9\frac{1}{2}$ is so well established that I haven't thought worth while to consider that further; but there hasn't been the same stability as to the kind of frame. Just as something seemed to be coming generally into use, some change would be made, and I might as well be picking out all the good points I could find in order to unite them in a frame that would satisfy me at least partially.

At first I thought I liked the Hoffman frame with the shouldered top-bars, and didn't see the sense of the Medina people in so soon making the change to the V-edged end-bar. But on longer use I found in actual practice that there was such an accumulation of propolis that each frame was practically $\frac{1}{16}$ of an inch wider at the shoulders. Nothing so very bad in that if the hive had been wide enough; but as it added half an inch to the total width of eight frames, they were so crowded in the hive that it was a difficult job to get out the first frame. I'm not sure that it wouldn't be a good thing to have the inside width of a hive $12\frac{1}{2}$ or more, instead of $12\frac{3}{8}$; but I've always tried to keep as closely as possible in the beaten track of that which is most generally in use.

The Hoffman frames, as now made by the A. I. Root Co., have the advantage that, no matter what the accumulation of propolis, by squeezing hard enough and long enough you can get them into place, because that V edge cuts its way through the soft propolis. But they have the disadvantage that such an amount of propolis is none too easy to pull apart.

Another thing about all frames that are spaced only a portion of the way from the top, is that, when you lift a hive and look under, you

are surprised to see the irregular spacing of the bottom-bars. To obviate that, the frames should be spaced at the bottom as well as at the top.

As it seems pretty well settled that the distance between top-bars should be $\frac{1}{4}$ inch, I know no good reason why the same distance should not be preserved between end-bars and bottom-bars. With the usual wider space, there is some trouble with brace-combs.

By spacing at bottom as well as top, it is possible to have a much smaller point of contact between the frames; and the smaller the point of contact, of course the less trouble with propolis. So I had some frames made with top-bar, end-bar, and bottom-bar all the same width, $1\frac{1}{2}$ in.; thickness of top-bar $\frac{3}{8}$. If there were no other reason for this thickness, there is reason enough in the fact that it keeps the brood-combs and the sections that much farther apart; and when the sections are too near the brood-combs they are darkened thereby. End-bar $\frac{3}{8}$ thick; bottom-bar $\frac{1}{4}$.

I studied a good deal on the matter of spacers. The Stephens spacer, with its two nearly cutting edges at right angles, gives the smallest point of contact of any thing I have seen, and smallness of contact surface is the especial desideratum to fight propolis. An objection to the Stephens spacer, however, is the fact that it spaces the frames from center to center at a fixed distance; whereas the thing desired is to have an exact space *between* the frames. One of these would secure the other if all frames were made exactly true; but, unfortunately, there will be variations in thickness; and a variation of $\frac{1}{16}$ in. in the thickness of top-bars may cause the distance between two top-bars to vary anywhere from a space of $\frac{1}{8}$ inch to $\frac{3}{8}$.

I wanted something, much on the principle of the Stephens spacer, and searched Chicago twice to find some kind of staple that would project $\frac{1}{8}$ inch above the surface into which it was driven, two antagonizing staples being at right angles to each other. The nearest I could come to it was the common double-pointed tack; but this could not be driven into the wood without splitting it. The only fear I had about an arrangement of this kind, providing I could get something that would drive without splitting the wood, was that each staple, being only $\frac{1}{8}$ in. distant from the opposite frame, the bees would fill that $\frac{1}{8}$ in. with propolis. But that would be nothing like the amount of gluing done with the Hoffman frames.

As a temporary shift, I used wire finishing-nails, knowing well the danger of these nails catching in the adjoining frame. I also used some furniture-nails. The latter I don't like, upon trial, as well as I expected to. While they do not catch as do the finishing-nails, the bees feel it their duty to fill out with propolis all the space between the whole of the nail-head and the opposite frame. As a result it takes quite a

pull to get the two frames apart. The heads of the wire finishing-nails are only about $\frac{3}{32}$ across, so that very little propolis is put around them, and a very slight pull brings them apart. I like them very much better than I expected to.

In the under side of the top-bar is a saw-kerf $\frac{3}{32}$ wide and $\frac{1}{4}$ deep, to receive the upper edge of the foundation. The frame is wired in the usual manner with four horizontal wires. The foundation is cut just the proper size to touch each end-bar, and $\frac{1}{16}$ deeper than the inside depth of the frame. The upper edge of the foundation is inserted in the saw-kerf, and then allowed to settle down on the bottom-bar before the wires are imbedded in the foundation. After the wire is imbedded, a strip $\frac{3}{4}$ or 1 inch wide is cut out, all but about an inch at each end. The lower edge of this strip is about $\frac{1}{4}$ inch above the lower wire. In this way I have frames filled solid with comb; but for some reason that I don't understand, some of the combs bag a trifle at the lower wire—nothing very serious, however.

I've only a hundred of these frames in use; and before I get any more I'd like to be told what change to make in them. Advice is solicited from all quarters. You will probably believe that I don't want to be in too much haste about getting a large number of these frames in use at once when I tell you that I have 500 loose hanging frames and about a hundred less Hoffmans, all wired ready for use, and I'd like to know a little better what I want before getting ready another lot.

Marango, Ill., Aug. 11.

[You are right in considering the size of frame as pretty well settled. While I have been very well pleased with the Hoffman, I know there are some who would prefer something a little less fixed when propolis is bad in the fall of the year, or when the atmosphere is a little chilly, making bee-glue hard and stiff.

The objections that you have named against the Stephens spacer holds good; and there is still another and a more important one—the expense.

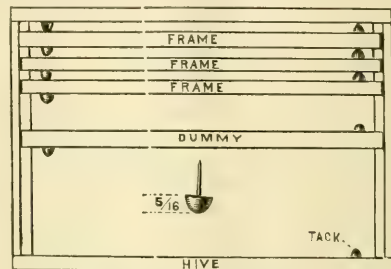
Finishing-nails for wires are used by some bee-keepers, but have never become very popular. A serious objection is their obstruction to the uncapping-knife, and their interference to the extractor caused by the nailhead catching in the meshes of the wire cloth in inserting and removing the frames. There is still another objection; and that is, if the nail itself is not crowded deeper into the frame in which it is driven by use, its head will in time gouge a hole in the other frame. Either would destroy equal spacing; and the great feature of the Hoffman frame is that you can crowd on one frame, and push as hard as you may, you can not destroy the exact spacing, because the wide perpendicular edges are sufficient to stand the strain. Suppose, for instance, that you remove a couple of frames from the center of the brood-nest. It is the fall of the year, and the four outside frames next you, we will say, are stuck down. It requires a little leverage to crowd them over *en masse* to fill up the space. Whatever spacer we have should be one that will stand a hard squeeze.

If you must have something different from

the Hoffman, I am inclined to the opinion that something on the order of a furniture-nail would be far better, notwithstanding your objection. You can not drive it too deep, and it will stand the squeeze. If the nails you tried with rounding points are not just the thing, how would those do that are perfectly conical?

As some of our newer readers may not understand the furniture-nail spacer, I introduce an engraving with the description that appeared in GLEANINGS for 1890, page 481.

As so many are suggested, I'll tell you one I'd like to try, but, oh dear! I'm so crowded in the busy season that it isn't likely at all I can try it; but some one else may. I think it may be very old. Get a furniture-nail whose head projects $\frac{1}{8}$ of an inch, or a square block of wood of the same thickness, and drive into one side of the top-bar at one end, just over the end-bar. Put one on the *opposite* side at the other end, and your spacing is complete so far as the frames are concerned. The dummy must be treated in the same way (for I imagine a dummy is important with fixed distances), and on each side of the hive must be a spacer where there would be one if a frame came in place of the side.



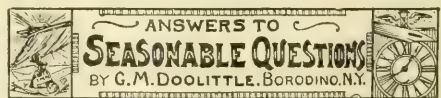
VERTICAL VIEW OF HIVE, DUMMY, AND THREE FRAMES WITH SPACERS.

To make it more satisfactory, I think a spacer should also be put about half way down the end-bar.

C. C. MILLER.

The heads of these furniture-nails are $\frac{5}{16}$ or $\frac{1}{4}$ inch deep, depending, of course, on the width of the top-bar. They are just deep enough to reach from one top-bar to the next; and as they are put on alternate edges, as shown in the diagram which we reproduce, exact spacing will always be secured.

The advantage of such a spacer is, that it can be attached to frames already in use. It can be used or not, as preferred. They are cheap, and will space top-bars just exactly the same distance apart, no matter whether they are sawn exactly the same width or not. As this spacer was proposed away back in 1890, I should like to hear from those who have used it since that time; and if so, how they *still* like it; if discarded, why discarded.—Ed.]



PREPARING THE BEES FOR WINTER.

Question.—Will you tell us something in GLEANINGS about how to prepare our bees for winter—when it should be done, and all about the matter?

Answer.—Well, this is a pretty big "dose" for once, and more than can properly come into one issue of GLEANINGS; but I will do the best

I can; and if space will not permit me to say all I should like to, I may try again in some other issue. Many seem to think that the latter part of November or December is early enough to prepare bees for winter; but some of our best apiarists have learned that the best results in wintering can be secured only when preparations are begun early in the season, so that the inside of the hive need not be disturbed after cold weather arrives. Therefore all colonies are to be looked after as soon as the honey-harvest is over, to see that they have good queens, and that there is plenty of brood in all stages, for this brood is to produce the bees that are to live through the winter months; and if, for any reason, there is not plenty of brood at the end of the honey-harvest, it is easy to tell what the result will be the following spring. If any colonies are found that have been and are short of brood, the queen should be changed for a good one, and brood from those which have an abundance be given them so that they can build up so as to be sufficiently strong in bees before cold weather sets in. If by any means, after all our precautions, the 20th of October finds us with weak colonies, they should now be united; for it is useless to attempt to winter very small colonies unless we have some special place to put them in, which has proven in the past to be sufficiently equal to the wintering of such colonies. Again, we wish to know that all have honey enough, of good quality for winter. Good quality in honey has as much to do with the safe wintering of bees as any one thing that can be named; and he who does not pay any attention to this matter can not expect to succeed. But what is good quality in honey? may be asked. If we look to nature for an answer, we shall find that, as a rule, the honey which a colony left undisturbed has in store, is that which has been in the hive long enough so that it is thoroughly ripened, having that rich, smooth taste we all like so well. Now, such honey as this can not be gotten, just at the close of the season, where the extractor has been used till the very last thing, as many novices persist in doing, leaving only the thin watery stuff which comes at this time of the year for the bees to live upon. In my opinion, upon the injudicious use of the extractor is chargeable much of the loss of bees in winter; for where we hear of large yields of honey taken with the extractor late in the season, we almost always hear of a corresponding loss of bees by the same parties the next spring. To overcome this difficulty it is better to set aside enough combs of thoroughly ripened sealed honey during the season to winter our bees; and then, when the honey yield is over, exchange combs with the bees, extracting all that is left in the combs taken from the bees if we so desire. In this way we are sure that the bees have such honey as they

ought to have to winter on. This applies only to those who are prone to extract too closely during the season; but it is a good plan to work a few colonies for such combs of thoroughly ripened honey to be used in case of emergency, no matter how the bees are worked.

Another reason why we should not put off preparing the bees for winter till cold weather comes, is that, if we do this, they can not well get their winter stores near and around the cluster in time for them to settle down into that quiescent state so conducive to good wintering, prior to November 10th or 15th. To arrange these stores, and properly prepare them, requires warm weather; hence all will see the fallacy of putting off caring for them till cold weather arrives. To be sure all have the desired amount of honey, there is only one certain way to do; and that is, to open the hives and take out each frame and weigh it, after having shaken the bees off from it. Next weigh a frame of empty comb, or several of them, so as to get the average weight, which, when deducted from the weight of those in the hive, will give the weight of the honey. If it is found that there is 25 pounds of honey, said amount is sufficient for winter where the bees are to be wintered outdoors; or if 20 pounds, that will do very well where bees are wintered in the cellar. If less, the deficiency must be made up; if more, it can spare some to help another colony which may be short. In this way go over the whole yard, equalizing and giving stores as is required, till all have the required 20 or 25 pounds.

"But," I hear some one say, "this is a fearful job to shake the bees off from every comb, and weigh it." Well, so it would be if done with each colony; but you will have to do this with only one or two till you get the right conception of just how much honey there is in each frame by simply looking at it and holding it before you, when you can count off the number of pounds almost to a certainty. However, you will have to weigh a few, if you have never practiced this plan, to give you the necessary training required. I can count off combs of honey so as to rarely vary one pound on the whole hive, and yet do it as rapidly as I can handle the combs; and when the apiary is thus gone over, there is a certainty about it which gives the apiarist a great advantage over any other mode of procedure, which can be little above guesswork at best. If there is not enough honey, after all are equalized in the apiary, to give sufficient stores to all, then draw on those combs you have set aside for emergency; and if not enough of these, then you will have to resort to feeding. As I go over the hives in this way I carefully note the quantity of bees, age of queen, amount of pollen in the combs, etc., which is jotted down on a piece of honey-section, this piece being left on

top of the hive, so that the next spring I can tell just what was in each hive the fall before, so that in case of loss I can form some idea of what occasioned it. This little piece of section also helps me in deciding what queens to supersede during the next season, for on it I keep quite a record of when the colony swarmed, how much honey it made, etc. After having the bees prepared as above, they are to be snugly tucked up in their chaff and sawdust cushions, at any time before the 20th of November, when most convenient, when they are to be left undisturbed till spring or placed in the cellar, according to where we winter our bees.

blossoms extend up and down the stalk. The seed from it is in a hull that curls up like a snail; and those hulls, or pods, will extend up and down the stalk from two to four inches.

Let the hive discussion continue, by all means. I have summed it up as follows: where the honey-flow comes late in summer I think the large hives, say 10-frame L., the best. Where the honey-flow is early I should prefer the 8-frame. I have tried two 8-frame L. hives, one on top of the other, but I don't like it. It is too unhandy to work with, and doesn't do as well for comb honey as the single 8-frame.

J. A. TAYLOR.

Wynnewood, Ind. Ter., Sept. 13.



THOSE NAUGHTY FIVE-BANDERS AGAIN.

Possibly you would like to know how I came out on the \$5.00 golden five-banded queen I got of you last year in June. I built her up with a fine swarm, and plenty of honey. I put the strong colony into our dry cellar in October. The swarm lived till January, then all dwindled away. Thus ended my nice tender bees. No more five-banded queens for me.

Canova, S. Dak.

L. R. HILLMAN.

LIFE-MEMBERS TO UNION.

In the matter of uniting the Bee-keepers' Union with the N. A. B. K. A., I am in favor, and would have not paid \$10 to become a life-member of the latter if I had not understood that it was to make me also a member for life of the Bee-keepers' Union.

O. R. COE.

Windham, N. Y., Sept. 21.

[Yes, some provision should be made by the committee to include life-members in the new organization.—Ed.]

12-FRAME LANGSTROTH HIVE.

Keep the hive question going. You remember you made for me last winter ten 12-frame hives. I have been using them with an equal number of 8 and 10 frame hives this season, and the results so far are about equal—about 70 lbs. per colony of comb honey. The 8 and 10 frames require a little more work than the 12. This has been an average season in this locality. Last year was a poor one, and all the surplus I got was from 12-frame hives. I am of the opinion that the queen is the greatest factor in the matter of surplus, all else being equal.

Bristol, Tenn. M. D. ANDES.

ALFALFA; HOW IT RESEMBLES RED CLOVER.

In the Sept. 15th issue of GLEANINGS you ask for a sample of alfalfa. I will describe it so any one can tell it. It has a stalk and leaf similar to red clover; but it is smaller, and the

RAPE AS A HONEY-PLANT. ALSO FOR CATTLE, HOGS, AND SHEEP.

I received 1 lb. of rape seed from you last spring, and sowed perhaps a third of it on poor sandy land, and my bees just fairly swarmed on it for fully one month; and I also cut it up to feed my hogs on, and they ate it in preference to corn. I had the rape along my pasture fence, and was compelled to cut up all near the fence to prevent their reaching through to get at the rape, and my cattle were not short of pasture either. I think it is one of the best honey-plants I ever saw, not even excepting white clover. I do not know how much honey my bees gathered from rape, simply because I was running them for increase this year; and I thrashed $2\frac{1}{2}$ bushels of seed.

A QUEEN WHICH I RECEIVED FROM JOSEPH NYSEWANDER, DES MOINES, IOWA.

Mind you, this is no ad't, for Mr. N. knows nothing of it. I received a golden queen from him, and on the 28th day of June she laid her first eggs. She was introduced to a poor miserable weak colony of bees, and she filled it up to a good colony. This is an eight-frame hive. She got so strong I feared she might swarm, so I took her and two frames of brood, and put her into a ten-frame hive, and she has also filled it and given me 28 lbs. of nice section honey. Now, if we can have such queens as this, then I say we must have larger than eight-frame hives. Perhaps I might add, that I had plenty of old combs, so they had none to build.

Cumminsville, Neb., Sept. 25. JAS. PRATT.

[We are very glad indeed to get so good a report from rape, for I have been feeling that it was a rather neglected plant. We have plenty more of the same kind of seed furnished friend P., which we can supply at the following reduced prices: 1 lb., by mail, 15 cts.; 10 lbs. or over, by freight or express, 6 cts. per lb.; 100 lbs., \$5.00. With favorable weather it will be in bloom in 30 days after it has been sown. This latter fact makes it especially valuable to put in after digging potatoes, or after other crops are taken off. It will also stand quite a little frost. On account of the above remarkable facts, it ought to be more extensively used by bee-keepers. This rape for the bees should not be confounded with the new Dwarf Essex rape. The latter is used for forage, especially

for sheep, and is usually fed or cut down before it comes into bloom.]



THE article by Mr. Langstroth, whose death is mentioned elsewhere, was written, as will be seen, some time ago; but, owing to the fact that not all the copy was received at the date, Aug. 13, and that proofs had to be sent and returned, its publication has been delayed until after the death of our lamented friend. Whether Mr. L. had already begun on his Reminiscences, so that there is some copy yet unpublished, I am not able now to state.

THE DRY-WEATHER WEED A GREAT YIELDER OF HONEY.

MR. J. C. WALLENMEYER, of Evansville, Ind., made us a short call a few days ago. He owns some 65 colonies in the region of the bayou of that place. He secures no honey from any source before the 1st of August, and that is from what is there known as "dry-weather weed." During dry seasons it yields bountifully a honey of good color and flavor; indeed, at its best it is estimated that there could not be colonies enough located in its vicinity to overstock the locality. In seasons when every thing does well by reason of rains, it does nothing, as was the case this year. By the way, Mr. Wallenmeyer has the distinction of being the composer of the sheet music entitled *Queenie Jaenette*, a waltz song. I dare not tell you out loud who "Jaenette" is; but let me whisper in your ear she is a real live person (I have seen her picture), known to Mr. W. There! I must not tell you more.

OWNING UP TO FAILURES; THE DARK AND BRIGHT SIDE OF BEE CULTURE.

SINCE the letter of J. P. Shaw in type, the following has come to hand:

Could not your pleasant tactics of showing up the good and praiseworthy be applied to Mr. Dosch's letter, page 737? Thousands all over the land say amen to what he says about the weather, etc.; and does it not take more courage and independence of character to own up to failure than to report success that is often only a streak of good luck? It is a consolation, too, for us unprosperous ones to know that there are more in the same boat with us.

Davenport, Ia.

A. GREER.

We do intend to give both sides a fair showing, especially the darker one; indeed, we do not publish by a long way all the favorable testimony we receive; and, on the other hand, we have tried to give space to *every thing* that is really discouraging, and which should be properly set before our readers. In evidence, see "Reports Discouraging" we have always

published at the proper season of the year. Years ago we used to have a department we used to call "Blasted Hopes." The trouble is, as you intimate, more with *bee-keepers* themselves who are too much chagrined to write than with the publishers. It is far easier to tell of our successes than our failures. But, say; is it not quite possible that friend Dosch made his picture overdark? See the favorable report in this issue by J. P. Shaw, on page 770, a man who lives only three miles from him.

QUEENS LAYING IN TWO STORIES.

I DID not notice that the article by Dr. Miller, on page 740, last issue, required a footnote until after the form had gone to press, so I shall now say what I should then have said.

When running for extracted honey I have had no trouble in getting the queen to occupy the second story, because, when she was crowded for room in the lower set, I simply took therefrom two or more frames and put them above, filling the space now made below with empty combs or frames of foundation. With the brood above, the queen, after filling the combs put in below, would go above. I have had as many as fourteen frames more or less filled with brood, and it was quite a common thing to have a dozen. When I had fourteen such frames I generally added a third story; and in this as well as in the combs of the second story not filled by the queen I got extracted honey—much more in proportion than from colonies having two stories and the queen confined wholly to the lower hive by perforated metal. What was more, those three-story hummers—for such they were for honey—never swarmed.

In running for comb honey the case is so different that I think I should try to confine the queen to the lower story; and whether, in the light of facts recently presented, I should want that brood-nest eight or ten, I can not say; though on account of the convenience of the eight-frame size I think I should prefer it. Taking it all in all I still prefer that size for both comb and extracted. For the latter it is large enough when tiered up; and in the case of the former it has and probably will give forth its tons of honey as before.

As to shallow brood-nests, all I can say of them is that I do and do not like them. From my present knowledge and experience I can not think that wide or deep top-bars are adapted to them. If, in order to use shallow brood-chambers, we must have narrow and thin top-bars with their attendant burr-combs—well, I *think* I should prefer to use something else, even if we were *sure* it were an advantage to use them.

DEATH OF REV. L. L. LANGSTROTH.

A COUPLE of numbers ago I announced that Mr. Langstroth's health had so far improved that he was in position to complete his series of

reminiscences, which had to be cut off owing to that distressing head trouble that has afflicted him for years; and only a few days before, a letter had come from Mr. L. stating that he was just about to begin on them. It was with much surprise and sorrow that we learned, on the 7th, that father Langstroth had died suddenly in the Wayne Ave. Presbyterian Church, about 11 o'clock on the 6th, while assisting the pastor, Rev. Amos O. Raber. The newspapers next morning contained quite extended accounts, and clippings from a couple of them were forwarded on to us at once; but knowing such accounts were not always quite reliable I wrote to Mrs. Cowan (Mr. Langstroth's daughter), saying that I hoped her heart would not be too full to give us further particulars. Below is her reply, giving the touching details of her father's death:

Mr. E. R. Root—*Dear friend*:—I can hardly tell you whether my heart is fuller to-day of sorrow for the loss of my dear father or of joy as I think of his blessed entrance into the land where "there shall be no more death, neither sorrow nor crying, neither shall there be any more pain, for the former things are passed away."

I can give you only a brief account of my father's last days. When asked, the Sabbath previous to his release, by our pastor whether he felt able to make the address at our communion service, he replied, "I shall be most happy to do so," adding, in response to the assurance that, if he did not feel able for it when the time came, he could be relieved, "Oh! I shall be able—it will be a joy to me, Mr. Raber. I am so glad you asked me!" He had been very bright and happy ever since his return from Toronto; but last week he took a heavy cold, and was much oppressed with it; and during the last few days he lost strength so rapidly, and seemed so feeble, that I wished him to notify our pastor not to depend upon his assistance on Sabbath. He was, however, confident that he could carry out his part in the services, and was so anxious to do so that I could not insist.

On Sabbath morning he was unusually bright, and overflowing with happiness and gratitude to the Lord for his blessings. My eldest son, with his wife and baby, had been spending a week with us, and he was much pleased with, and proud of, his little great-granddaughter. He asked her mother that morning to wheel her little carriage into his warm room, and I shall not soon forget how happy he looked as he sat beside it, talking to and caressing the little one. They were at the church.

After dressing, father seemed much fatigued, and I again asked him whether he thought it were best for him to try to preach. He replied, "Oh, yes! I will say a few words, and then I will come home and rest, rest, rest." He is most certainly "at rest with the Lord."

Before preaching, Rev. Amos O. Raber moved the pulpit to one side and placed a chair on the front of the platform. Father began to address the audience, sitting, with some explanatory remarks as to his weakness. After a few introductory sentences requesting the prayers of the congregation for himself and the service, he said: "I am a firm believer in prayer. It is of the love of God that I wish to speak to you this morning—what it has been, what it is, what it means to us, and what we ought—" As he finished the last word he hesitated; his form straightened out convulsively; his head fell backward, and in about three minutes he was "absent from the body, at home with the Lord."

There was no scene of confusion in the church. Tears were running down every cheek, but there were no screams, no loud sobbing. As one person remarked, "Heaven never seemed so near before; it seemed but a step."

"Then, with no fiery throbbing pain,

No slow gradations of decay,

Death broke at once the vital chain

And freed his soul the nearest way."

Sincerely yours,

Dayton, O., Oct. 8.

ANNA L. COWAN.

A. I. ROOT'S PERSONAL* RECOLLECTIONS OF THE
REV. L. L. LANGSTROTH.

In the Introduction to our A B C book you will find some mention of the incidents of my first acquaintance with the honey-bee. During the whole of my busy life, perhaps no other hobby has been pursued with the zeal and keen enjoyment that my acquaintance with the honey-bees has. It seemed for a time as if a new world were opening before me. After I had questioned again and again everybody who kept bees, or knew any thing about them in our neighborhood, I began impatiently ransacking books and periodicals. The more I found, the more I thirsted for deeper knowledge. I took a trip to Cleveland, principally to overhaul the bookstores for works on bees; but I did not dare to tell even the members of my own family that I was taking such a trip by stage-coach (for it was away back in the days of stage-coaches, before our railway was built), just to satisfy my thirst and curiosity in this direction. I remember well how the book-keeper pulled down his volumes one after another, rapped the dust off, and began extolling their special merits. It did not take me many minutes to decide that Langstroth's book was *the* book. I was obliged to stay over night at the hotel, for the stage made only one trip daily. I read and read, away into the night; and it was during that night I commenced my acquaintance with the Rev. L. L. Langstroth. He told me just what I wanted to know. My craze was not (certainly not at that time) to make money, but rather to know more about God's wonderful gifts—these strange and *curiously* wonderful gifts which he has provided for the children of men. I did not look at it then just as I do now; that is, I am sorry that, in those earlier days, I did not recognize the Almighty as a loving father. But Langstroth's book helped me a great deal, right in the line where I sorely needed help. His wonderfully genial, friendly, and sociable way of telling things enlisted my sympathies at once.

I told you I was not studying then for the *money* there was in it. Langstroth never wrote about bees or did any thing else because of the *money* there was in it. Through all his busy life, he, at least at times, seemed strangely oblivious of the *financial* part. More of this anon.

After I arrived home it did not take me long to find out whether Langstroth was still living. I made the acquaintance, by letter, of Samuel Wagner; got hold of Vol. I. of the *American Bee Journal*. By the way, I wonder whether there is anybody living now who will enjoy reading the first edition of Langstroth and the first volume of the *American Bee Journal* as I enjoyed it then. Why, the very thought of

* We hope to have personal recollections and historical incidents from a number of other writers, on Langstroth, in our issue for Dec. 1st or 15th. Announcements will be made later.—Ed.

those old days of enthusiasm makes the blood even now tingle to my fingers' ends.

As soon as I found that Mr. Langstroth was living at Oxford, Butler Co., O., I commenced correspondence. Then I wanted the best queen-bee to start with that the world afforded. It was pretty well along in the fall, but I could not wait till spring, as some of my friends advised me to do. I soon learned to look up to friend Langstroth with such confidence and respect that I greedily read again and again every word I could find from his pen—even his advertisements and circular in regard to Italian bees. When the book was read through once I read it again. Then I read certain chapters over and over; and when summer time came again, and I had little miniature hives or nuclei under almost every fruit-tree in our spacious dooryard, each little hive containing a daughter of that \$20 queen, then I read Langstroth's book with still more avidity and eagerness, finding new truths and suggestions in it each time.

I think I met him first and heard him talk at a convention in Cincinnati. He was a wonderful talker as well as writer—one of the most genial, good-natured, benevolent men the world has ever produced. He was a poet, a sage, a philosopher, and a humanitarian, all in one, and, best of all, a most devoted and humble follower of the Lord Jesus Christ. His fund of anecdotes and pleasant memories and incidents was beyond that of any other man I ever met; and his rare education and scholarly accomplishments but added to it all. No one I ever saw could tell a story as he would tell it. A vein of humor and good-natured pleasantry seemed to run through it all. I think he enjoyed telling stories—especially stories with good morals; and they all *had* to have a good moral or they could not come from L. L. Langstroth. Not only the play of his benevolent face and the twinkle of his eye, but the motion of his hands as he gave emphasis to the different points in his narration, showed how thoroughly he entered into his topic.

It was my good fortune to listen to him one or more times from the pulpit. He preached to us once here in Medina. The church was full, but I hardly believe any one else in that large audience enjoyed his talk as I did. They did not *know* him as I did.

You must not think from what I have said that our good friend always agreed with every one else. He had opinions of his own, and he could be stubborn and almost contrary when he got "hot" in a discussion. But the gentle spirit was back of it all. I remember once of being out in the apiary, explaining to him some wonderful improvement I had just been working out. He, however, did not see it as I did, and stoutly maintained that the old way—his way, in fact—was better. All at once I stopped

and concluded we had better give up the subject. Pretty soon he laid his hand on my arm, and said:

"Friend Root, will you not forgive me? I was rude and uncourteous. You have practiced this thing, and are succeeding. Very likely you are right and I am wrong."

Now, friends, how many times in this world of ours do you meet a man with a spirit like that? Once or twice I have knelt with him in prayer. Sometimes we have prayed together in regard to differences among bee-keepers; and I have always been struck with his remarkable gift in prayer. It seemed as though he were pleading with some dear friend, when he addressed his Maker.

His last public talk to bee-keepers, if I am correct, was the one given at Toronto; and I felt anxious at the time that some shorthand reporter might be at hand who could give all his words, and even his little stories, just as he gave them to us then. Perhaps others did not enjoy this talk as I did, because they did not know him as I did. Why, that history of long ago, telling of the troubles, blunders, and mistakes in introducing the Italian bees from Italy to America, should be handed down to coming generations. It should be embodied in some of the standard works on bees, in order to secure its preservation.

Langstroth and Quinby—those two old pioneers—have now both passed away, but "their works *do* live after them," and shall live for a thousand years or more. I feel anxious that the first edition of both Langstroth and Quinby should be preserved. There is something to me more interesting in their first efforts—Quinby's book, for instance, telling how to keep bees with a box hive, and Langstroth telling his first experiments with the movable-frame hive. Those early editions should be preserved; also the early volumes of the *American Bee Journal*, containing the writings of these two great benefactors of the world.

When quite a child I was greatly interested in reading the life of Benjamin Franklin. When I first became acquainted with Langstroth I could not resist the suggestion that he was much like Franklin. The maxims of Poor Richard suggest the thought. Mr. Langstroth was remarkably well read in ancient literature. He was familiar with the writings of great men in all the ages. It rejoices my heart now to know that he has been remembered for many years at our national conventions, and to know that he was even present with his daughter at the one that occurred so short a time before his death. He never seemed to have a faculty for accumulating property; but what is *millions* of money compared to the grateful remembrance with which Langstroth's name will be spoken in every civilized land on the face of the earth?



ON THE WHEEL.

My weight has finally been reduced to 110 lbs. To test the matter in regard to whether one loses strength by a corresponding loss of flesh, I decided to take a wheelride on the morning of Sept. 21—the hot Saturday you remember so much has been said about in the papers. After eating a whole pound of sirloin steak as a starter I rode 32 miles, perhaps easier than I ever did it before. There is certainly a big advantage in reduced weight for wheel-riding, although it may not be as true for different kinds of hard work. I now weigh from 20 to 25 lbs. less than my ordinary weight. Sometimes in doing errands it becomes necessary for me to carry some 10 or 20 lbs. on my wheel, and I find it makes a vast difference when I finish my errand and leave my burden. Now, is it not possible that thousands of people are carrying around with them day by day a useless amount of *avoids*? I do not refer especially to those people who are over-fat. My normal weight is from 130 to 135; and I confess I find it a great relief, especially on a hot day, to feel that I am 20 or 25 lbs. lighter, and yet no loss of strength and energy. By the way, is there any better way of reducing flesh than by the Salisbury treatment?

A few days later I started out to visit friend Gault. I wanted to see his raspberries during the last of September. The Weather Bureau said "fair weather;" but the barometer said "rain." I had my work all fixed, and I was in just the mood for a wheelride; so I started out in defiance of the barometer. I made eight or ten miles very easily, and with much enjoyment. Then it commenced to sprinkle; but as it did not sprinkle enough to make the dust stick to the rubber rims, and as I had on some very light thin clothing, I kept on in the rain. The rain was at first a sort of damp mist. But it kept getting wetter and wetter. Pretty soon I experienced the delicious sensation I have mentioned before, of breathing great breaths of water-laden air. I wonder if anybody else has enjoyed this while riding the wheel. It is much like drinking when you are thirsty, but you drink through the lungs. I enjoyed it so much that I kept on until I was pretty well wet through. Catch cold? Not a bit of it. When you weigh only 110 lbs., and your muscles are all solid lean meat, something like dried beef, perhaps, you can not very well catch cold. I kept on enjoying it more and more until finally the roads began to be too soft for wheeling. Then I was obliged to invade a little home by the wayside. I was permitted to help myself from a tea-kettle of hot water on the stove. Then I talked with the six-months-old baby, and got acquainted with the rest of the household, and put in an hour until the rain stopped, very pleasantly. By getting over to the nearest station I reached New London after 9 o'clock at night; but as the rain had spoiled the wheeling I got up at five o'clock and found the way over to our friend Dan White's just as the hired man was getting out of the back door. As soon as Mr. White was informed that A. I. Root was on the premises he hustled on his clothing quickly, making some apologies for getting up so late on a rainy morning. After we had shaken hands and talked over matters a little he commenced:

"O Mr. Root! You are just in time to see the

neatest thing in the way of a strawberry-patch there is out. Just come this way."

If our readers will now turn back to page 71, Jan. 15, they will find some diagrams in regard to setting out strawberry plants. Well, friend White's patch was a modification of this idea. In the first place, he marks out his ground in the spring of the year so as to put the rows 4 feet apart; then the plants are carefully set 18 inches apart in the row. As soon as they send out runners, one new plant is made to grow half way between the original plants. That leaves them 9 inches from center to center. Now the next step is to put a plant 9 inches off on each side of every plant in the row. The diagram below will make it plain. The large stars are the original plants, and the small ones where the runners are put down.

* * * * *

DAN WHITE'S SYSTEM OF GROWING STRAW-
BERRIES.

You will notice that the above arrangement makes the plants 9 inches apart from center to center; each old plant is to furnish three young ones. The row of plants is 18 inches wide, the path $2\frac{1}{2}$ feet wide. Well, after you get these three rows, plants 9 inches apart, then you are to pull off every runner. Go over the ground so often that not a weed gets a start, and not another plant gets a start except the three rows as given above. The effect is to make each plant, by the time frost comes, a strong bunchy cluster. It is several years since we first practiced taking off all the runners so as to get strong bushy plants; but I am firmly convinced that in no other way can we get such large fine berries.

The next question is, What variety shall we use? Dan White's model strawberry-patch is Gandys—nothing else. You know there has been a complaint that the Gandy does not bear very much. Some large strong plants, for instance, will not bear a single berry—at least, not the first season. Well, friend W. says it is because the plant has not grown to a sufficient size. He says if you take the first Gandy runners that set in June or July, give them good cultivation, and stop off all the other runners, you will get a plant by fall big enough to give a good crop of fruit next year, and I believe he is right. Our Gandys always did better the second season from planting.

This patch of strawberries on friend White's premises is, I believe, the handsomest, and the most of a model patch, of any thing I ever saw anywhere, unless it is those of Henry Young, Ada, O., that I looked at last winter. There are absolutely no weeds in it. There was a plant wherever there should be one, and no extra ones. And I tell you, friends, it is a grand thing to have a full stand in raising any crop. This reminds me that I forgot to say that T. B. Terry's potato-fields were absolutely a full stand. There were no missing hills—at least, I did not see any. But his planting was all done by hand. Since digging his Freemans he tells me that, on his best ground, they ran as high as 195 bushels per acre. Now, for the season we have had, especially the severe drouth in his locality, and for a potato of such *fine quality* as the Freeman, this is certainly doing pretty well, especially where a whole farm, as it were, is planted to potatoes. But, to come back to friend White's.

It is a big lot of work to set each runner in place by hand, and to pinch off all the superfluous runners. But, there is no excellence

without great labor. Friend W. had a large crop of strawberries during the past season, and sold them all at extra prices. Three or four cents more per quart for your berries will easily pay for the extra labor; and when you get right down to it, a good many times it is about as cheap to do any thing *right* as to let it go, or to get out the weeds by fits and starts after they have done a big lot of damage. He placed his berries right in the market, side by side with other berries that were selling at 5 and 6 cents. When the dealers protested about his asking 10 and 12 for his he replied:

"You need not buy them at all, my friend, unless you have a mind to. Set them right out here on the walk, put a tag on them, stating the price, and I will allow you a commission for selling."

If the above conversation took place on the sidewalk, where it usually does, about this time somebody going by wanted some of the berries. Then somebody else wanted some more; and pretty soon the dealer says, "Here, Mr. White, I will take them at your price." Now, this is the same thing Terry describes in his strawberry-book. It can be done every time when you have something away ahead of the general run in the market. Terry accomplished the matter of getting his plants so as to give each one plenty of room, by cutting out the surplus plants in the fall. Friend White's plan is more work, but I think it is a little ahead, because the surplus plants are out before they get started. And then, what a pleasure to show to your friends—I do not mean the berries—I mean the plants and the strawberry-garden! I should judge friend W. has something like a quarter of an acre close by his dwelling, managed on this high-pressure principle.

White breakfast was being prepared, a fine horse was quickly put in the buggy, and we went half a mile back through his raspberry-plantation. They are managed a good deal as he managed his strawberries—that is, the greater part of them—and they are certainly a sight to behold. The ground is nicely tiled, and it is just the kind of sandy loam that berries revel in. Sure enough, there were two rows of the Gault raspberries; but the demand for plants was so great the blossom-buds had all been picked off, and the tips were down in the ground. Yes, and his plants were all sold before they were fairly well rooted, even though he should have a couple of thousand. That is the way to do business, friends—make your product of such a grade that it is sold before it is ready to take out of the ground.

On the way back we passed a field of Stowell's Evergreen sweet corn that so took my fancy I engaged then and there ten bushels of shelled corn for seed.

"Breakfast is ready!" As friend White's oldest boy, Ford White, is under training for bicycle-riding—that is, a sort of home training—he kindly shared his nice beefsteak with me, so I came out all right, even if I was driven off my route by the rain. Then friend W. and I were off for friend Gault's plantation, seven miles away. But, lo and behold! just as we were crossing the railway, our genial friend Gault was seen coming for us with great strides. He was on his way to the Elyria fair, with a basket of Gault raspberries to be exhibited; and so I did not reach his plantation at all that day, but made him turn round and go to the fair, even though he protested somewhat.

Two things at Elyria attracted my attention especially. One was the great show of potatoes, including almost every variety of any note. In fact, there were potatoes enough to fill the vegetable department to the exclusion of all

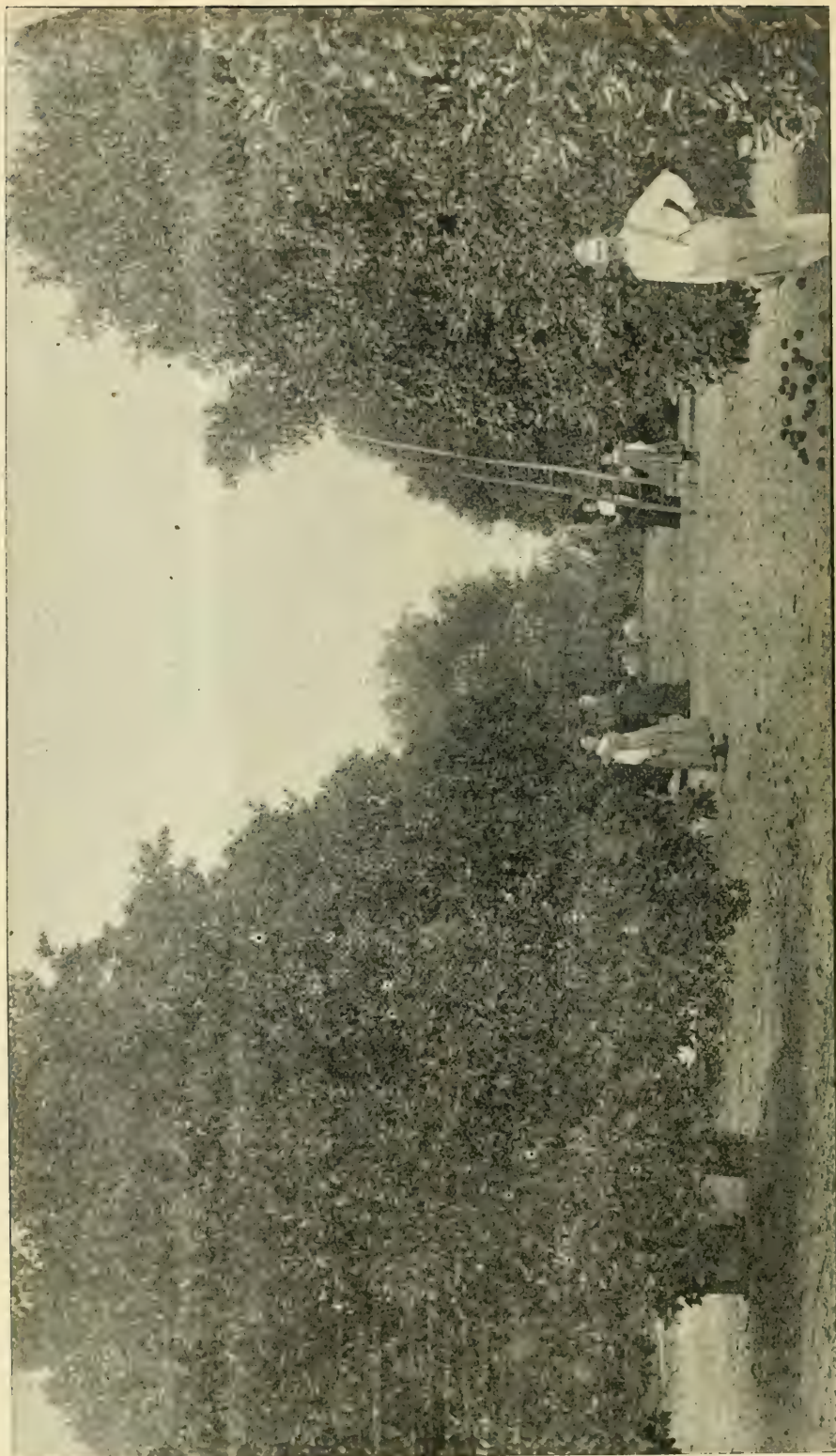
else, and they had to fix a sort of "annex" for them outdoors. The other thing that attracted my attention—well, it did not just exactly attract *my* attention, after all, so much as it seemed to call the attention of the crowd in general. It was not the big potatoes nor the big squashes, nor friend Gault's show of raspberries toward the first of October; but it was a great lot of establishments for games of skill and chance—throwing a ball at a doll-baby, with a cigar for a prize; shooting at the mark, and other things that ran so near gambling the sight was any thing but inspiring to me. Why should the gambling-mania and rural industries be thus linked together hand in hand, as it were, at our county fairs? By the way, I wonder if there is any sort of *diet*, or any sort of wholesome food and drink, that we could furnish to our boys and girls to discourage this disposition toward the *gambling-mania*. No doubt these fellows make money, or they would not work so hard to call people to their respective places. They evidently get a pretty big harvest of nickels or they could not afford to pay the fair-managers so big a sum for the small amount of space they occupy. By the way, where do our farmers' boys and girls get so many nickels, anyhow, for popcorn, candy, games of chance, etc., if it is true that "farming doesn't pay"?

On a later day, when it did not rain, my wheel and I managed to reach friend Gault's; but it was only after there had been frost enough to "cook" (at least partially) the Gault raspberries. But a small part of friend Gault's plantation is allowed to bear fruit, because the demand for plants is so great. We found stacks of great clusters of berries, picked and brought into the house before the freeze, some only half ripe, and a good many more on the bushes, that had been covered with old sacks, blankets, etc. Surely, no other raspberry ever bore its fruit in such tremendous great heavy clusters and bunches. I think one single shoot contained, by actual count, 248 berries; and there was any quantity of them having from 50 to 100. On the old plantation there were single branches lying flat on the ground. In fact, the Gault raspberry is almost sure to lie flat on the ground, through its weight of fruit, unless it is tied up or supported in some way. Although we have some very large fine bunches on our grounds, our plants have not as yet shown as much disposition to fruit heavily as they do on the grounds of the originator. Of course, the frost last spring made havoc with the fruit in every locality. When it comes to raising fruit for the market, these great bunches must be supported in some way, or tied up, or they will be in a worse plight from the effects of mud and sand than even strawberries.

It is really worth while to see friend Gault exhibit his berries at a county fair, and notice the animation with which he answers questions, and explains to everybody his new raspberry. I presume he could take a large number of orders for plants, to be sent out this fall; and I fear that nurserymen *generally* will not be as conscientious as he is in advising everybody to wait until spring, and not undertake fall planting with the Gault raspberry.

FLORIDA TRAVELS.

Just here it occurs to me that several items in regard to our Florida trip were not taken in their proper order. This is not very strange, as it is now several months since I made that pleasant trip. In writing up Silver Spring in our last issue I omitted to say that it was my good fortune to be present when the steamers both came in with their merry crowd of laugh-



A FLORIDA ORANGE-GROVE IN FULL-BEARING, SHOWING HOW THE PROPRIETOR LOOKS WHEN HE IS HARVESTING A BIG CROP, AND PRICES ARE GOOD.

ing passengers. After the water had become quieted, and as the boats stood there for some little time, I went out on one of them and looked over its edge into the water, straight down where the pool is perhaps deepest. The water is so clear it really made one dizzy—straight down 85 feet into a liquid that is brighter and clearer, or at least it seemed to me so, than even the air itself. It made one feel strangely. When two steamers start out there is generally a little rivalry to see which will get away first and get into the narrow channel higher up. Upon the arrival of the steamers the alligators perched along the banks and by the roots of trees (like a lot of frogs and snapping-turtles) make a sudden plunge into the bright water. It was my good fortune to see four good-sized ones popping their heads up after the water had stilled down a little. Getting a glimpse of the 'gators, especially the large ones, before they are disturbed and tumble in, is one of the exciting sights for passengers down the Ocklawaha River.

In the vicinity of Silver Spring there are many sink-holes or cavities in the earth, such as I mentioned in Missouri. And, by the way, are not these found more or less in all localities where great springs and artesian wells are prevalent? On my way back to Ocala, the stage-driver told me there was a spot a few miles out of town where a horse broke through on the level ground. His rider managed to grasp the crust of earth and thus saved himself before the horse went down clear out of sight. As he was a valuable one, however, the neighbors rallied; and as they could hear his breathing from the depths below they set to work and dug him out—or, at least, made a sloping path so that, by the assistance of ropes, they enabled him to climb out himself.

On my trip back from Ocala to Palatka my curiosity was greatly stirred up by the kaolin-factories. This kaolin is manufactured from a species of clay found in different parts of Florida. It is used in the manufacture of fine china and earthen ware. The factories are quite extensive, and the process is, I judge, somewhat complicated. They seem to employ a good many men, and are doing a large business. I wish some of the Florida friends would write up briefly this matter of kaolin.

At Palatka there was a great crowd at the station, as several trains leave about the same time in the afternoon and evening. Of course, they have railroad officials appointed to answer questions and tell people where to go. But these men are asked so many questions and (oftentimes so many foolish ones, perhaps), that they sometimes get crusty and uncivil. You know how it is, friends. They will answer your question in as few words as possible, and look the other way while talking. Well, I was greatly pleased to see a pleasant-looking middle-aged colored woman on the platform, and she was kept very busy indeed, showing people what train to take, taking them by the hand, if need be, and pulling them through the crowd to show them in that union depot where to get a ticket, what train to get on, etc. I had already an excursion ticket, but it obliged me to go around by St. Augustine, which would delay me another day in getting to Jacksonville. This woman helped me to get on the right train just starting out, that would reach Jacksonville that night; and the additional expense was little if any more than my board and lodging would be if I had waited till another day. Now, some of you may make fun of me, perhaps, when I say that colored people have a remarkable fund of patience in answering cheerfully and good-naturedly all the questions

you may put to them. This woman was smart and bright, and evidently knew all about the railroad machinery of travel as well as any of the men. I do not know who pays her for her time; but very likely it is the railroad companies. But with such a stream of humanity, many of them tired women with children, perhaps crying babies, this bright cheerful woman was surely a ministering angel, even if she was black.

In reaching Green Cove Springs, mentioned in my last, I took the steamer from Jacksonville. Well, somewhere in the vicinity of Magnolia Springs I saw cows wading away out into the St. Johns River, and actually eating grass or something else, with their heads entirely under water. At first I thought them some strange sea-monster. I did not know but it was the genuine manatee, or sea-cow, found in the Indian River, away down in the vicinity of Potsdam, where friend Poppleton lives. Somebody has since told me that I must be mistaken, for a cow can not live with her head under water. But I tell you she can live and does live with her head entirely under water, and out of sight, for a good many minutes. I think I saw half a dozen or more with not a head of one of them in sight, and their huge bodies were more than half under water at that. They had evidently learned the trade by long practice. I do not know what sort of forage it is that grows at the bottom of the St. Johns River; but I think it would be a splendid thing to cultivate, especially during *dry seasons*. Will somebody who lives down that way tell me more about it? I also omitted to say that that wonderful Green Cove Spring sends out 5000 gallons of shining water every minute.

When I was down at Mt. Dora lamenting that I could not see those great orange-trees in full leaf, somebody—it may have been my good friend Nellie Adams—said:

"Oh! yes, you can, Mr. Root. Here is a picture that will show you just how they look."

The man in the foreground may have been her brother; but it is really so long ago I can not remember, and I neglected to mark it on the back of the photograph. Whoever the person is, I am afraid his smiling face got a damper after the terrible frosts of last winter. Maybe he has by this time got so as to look good-natured and happy again. I hope so. Some people have but little idea of the immense size to which orange-trees grow in a favored locality.

OUR HOMES.

Create in me a clean heart, and renew a right spirit within me.—PSALM 51:10.

I have before alluded to the fact—a wonderful fact it is to me—that, by a certain course of diet, one is free from the cravings for intoxicants and stimulants, or even a craving for what are called "temperance drinks." I still enjoy the hot water, and still prefer it to any other beverage the world can furnish. In fact, I am now using hot water at my meals, instead of the tea the doctor permitted me to have. I do not need the tea, and I do not want it. The water is nicer. Of course, with the large quantity of water drank in the middle of the forenoon and middle of the afternoon, very little liquid is wanted at mealtimes, and that is all the better.

Now I hope our readers will pardon me for touching upon another point—a point that is seldom talked about in print, but one that has very much to do, not only with the morals of

our people at large, but still further in regard to the matter of suppressing crime. We have been told by eminent physicians and clergymen that sexual vices may be productive of more evil in this world of ours than even a taste for intoxicants. The older readers of GLEANINGS will remember that I have at different times alluded to my own temptations in this line, especially during my early life. I have prayed long and earnestly over the matter since I became a Christian, and have many times wondered if it were not my "thorn in the flesh" that God thought best not to remove, but to give me grace to bear. Through correspondence and through personal intercourse in my travels and during my wheelrids, I have found many another good brother who has confessed to me his trials along this very line. It is, without question, one of Satan's greatest weapons; and it is a work that he carries on, not only among the lower classes, but it comes clear up through all grades of society. We have but to glance over the newspapers and notice the startling accounts of crime, often revealing the fall of those who stood in high places. Well, there is a remedy. One who secures perfect and complete digestion not only finds himself free from unnatural cravings in the line of beverages, but this strange, restless, uneasy feeling that comes of itself, many times so unexpectedly—these phantoms of the imagination that we all ought to be ashamed of, and many of us are ashamed of every day of our lives—these, too, give way and disappear when the blood flows evenly through the veins, without being disturbed or wrought up by a disordered digestion and consequent unnatural cravings.

It would seem as if a great part of the crime abroad in the world were the result, not alone of a bad state of the heart, but as a consequence of the bad state of the *stomach* and *intestines*. Over-eating has for ages been recognized as a promulgator of unnatural longings and consequent crime. Now, it is not only over-eating and over-drinking, but I am satisfied it is the wrong *kind* of eating and wrong kind of drinking that pave the way for Satan's work.

Some little time ago I quoted to you a part of a talk from Anthony Comstock in regard to "evil imaginations;" and I have wondered why God permitted good men—devout, Christian men—to be haunted with imaginations that evidently must come from the evil one himself; yea, verily it seems at times as if they must come from the bottomless pit. I have prayed over the matter, and answer seems to have come with the prayer. For many weeks I have been entirely free from any thing of the sort. Pardon me if I be frank enough to tell you that, for the first time in almost *fifty years*. I have enjoyed perfect freedom and immunity from suggestions of the imagination that I should be ashamed to have my wife, mother, or grown-up daughters know all about; that is, if they could read my very thoughts for the past few weeks there would be nothing in that line to be ashamed of or to fear to have them see. Now, from my acquaintance with mankind I know that this is, at least as a rule, something remarkable. In a recent issue I suggested that wholesome digestion might be more than the Keeley cure has ever *claimed* to be, in the way of preventing intemperance. It would stop the mischief at the fountain-head. I ought to say more—that perfect natural digestion, such as God intended we should have—would stop at the fountain-head this other twin evil, or twin demon, of the evil one. It would be a most perfect cure for licentiousness. No, you need not be afraid that there would not be *people*

enough born into the world. We might have a less number, but we should have a better sort of people. What there would be lacking in *quantity* would be made up in *quality*. There is many a man so honest in dollars and cents that he is never tempted to touch, or even *covet* the gold that belongs to his neighbor and not to himself. So far as money or property is concerned, he could live up to the golden rule; but when it comes to that part of the tenth commandment where he is commanded not to covet his neighbor's wife nor maid-servant, it may be a different thing with that person. When a man can look upon all womankind as he would upon the daughters of his own household, then he may be said to be truly born again. He is a child of the new birth; and I am firmly convinced that so simple and prosy a matter as the choice of his food and drink may prove to be a great factor in perfect emancipation from this form of evil. This thing *alone* may lift him from the "house of bondage."

There seems to be an impression very widespread, that the use of meat as a diet tends to develop the animal passions. This may possibly be true when taken with large quantities of vegetable food, sweets, etc. But it certainly is not true on an exclusively lean-meat diet. It can not be that meat conduces to the accumulation of flesh or fat, for the Salisbury patients invariably lose flesh for at least quite a time, say perhaps for several months. And, by the way, it seems that, where it is desirable to reduce one's weight, there can be no safer or simpler remedy than the lean-meat diet. If it is not meat, then, that makes people fat and heavy, and develops the coarse animal nature, to what part of our food should we attribute this result? After having given the matter considerable thought, my impression is that the excessive use of sugar or other sweets has much to do with it. On page 711 I quoted from Prof. Atwater in one of the United States Agricultural Reports. Let me quote again, for I think a part of one of the quotations will *bear* repeating:

We consume relatively too much of the fuel ingredients of food—those which are burned in the body and yield heat and muscular power. Such are the fats of meat and butter, the starch which makes up the larger part of the nutritive material of flour, potatoes, and sugar, of which such enormous quantities are eaten in the United States.

Please notice the concluding sentence. Statistics have told us again and again that the consumption of sugar, especially the amount per individual, is constantly on the increase. The low price of sugar has probably had much to do with it, and a fondness for sweet things. It is not only at meal-times; but our ice-cream soda-fountains, our temperance or summer drinks, are largely composed of syrups, and everybody seems to want them as sweet as possible. On the fairgrounds during this season of the year, great quantities of sugar are used in making different kinds of cream candy. I have many times wondered why people would shower down their nickels for a little piece of hot melted sugar, when a moment's reflection should tell them that the nickel would buy ever so much more pure sugar right at any corner grocery. There is plenty of sugar in the sugar-bowls at home, to be used at meal-times; yet all through the day our children are spoiling their teeth, spoiling their digestion, and may be spoiling their moral and spiritual natures, by this excessive use of sweets. Prof. Atwater may well say, "In such enormous quantities." Of course, sugar has its use as an article of food; but after being without a particle of it for many weeks, I experienced no particular inconvenience. On tasting a little a few days ago, by experiment,

I was surprised to find that I had to a considerable extent lost my taste for it; and I must think it is a good deal an acquired taste. If I am correct, starch and sugar are at the bottom of half the dyspepsia and indigestion that afflict our American people. In fact, the Salisbury treatment is largely based on feeding the patient on something that contains not a particle of either starch or sugar. This is not a new idea by any means. In diabetes, and perhaps other diseases, the patient is obliged to guard against articles of food containing starch and sugar as he would guard against poison. Our good friend Dr. Jesse Oren, at Daytona, Fla., told me that for many years he had been obliged to practice this sort of diet. He has a sort of bread or cracker called gluten cracker, I think, which contains no starch, and, of course, he subsists largely on lean meat, as I do. Now, when it becomes apparent, or seems to become apparent, that it is not only a damage to our physical natures, but a damage to our moral and spiritual natures as well, does it not behoove us to look after these things?

Many times we hear people speak about avoiding meat for supper, or just before they go to bed. For years past I have been obliged to be careful about eating fruit, pies, or cake very near my bedtime. But for more than 25 years I have been aware that I could eat lean meat for a late supper just before going to bed, without having my rest at night disturbed a particle. Now, then, friends, when we use that oft-repeated prayer, "Create in me a clean heart, O God, and renew a right spirit within me"—and I hope the thousands of our readers have been using that prayer for years past as I have used it—when we take these sacred words on our lips, does it not behoove us to be careful of our diet? In our recent Bible readings in the Old Testament I have been struck again and again with the fact that the patriarchs in olden times, in an age when men lived to be from 500 to 1000 years old, nearly all had their large flocks and herds; and their sheep and oxen were counted by the hundreds and thousands; and on fast-days it would seem, indeed, from the accounts of the number of animals used for a feast, that they must have been largely a meat-eating people. We do not read much about sugar and candy in those olden times. In fact, milk and honey seem to have been the nearest approach to it; and if we were using milk and honey now (instead of sugar at 4 or 5 cents a pound), with meat in the quantities evidently consumed away back in the childhood of humanity, who knows but that we might live and hold our strength and vigor for a hundred years or more?

For years past, Mrs. Root has constantly urged me, especially when my health was poor, to eat more lean meat and less of other things. But some way, after indulging in sweets and fruits I would get a dislike for meat, and oftentimes give it up altogether until I was obliged to call a halt. Dear reader, if you are afflicted with poor health along the lines I have indicated, just try for a little time using more lean meat and less of sugar and starch, and see if I am not right. You may urge the matter of expense; but the dearest "feed" that anybody can find is that given by doctors, and bought at the drugstore. And, by the way, poor people, and those in moderate circumstances, a great many times employ the doctor a great deal more than the rich. Is this not true? People who are too poor to pay a doctor, and, in fact, never do pay him, oftentimes are the ones who are wanting the doctor continually.

Right here it would seem quite fitting that I should give some extracts from a letter just re-

ceived from my old friend and physician, Dr. J. H. Salisbury, the originator and discoverer, if I am correct, of the system of treating disease, that has received his name, not only throughout England and America, but almost if not quite throughout the whole world.

Dear Mr. Root:—You must be rigid, and follow out the instructions accurately, and put your whole soul and body into the work, if you desire to make good progress. Keep the bowels well open, stomach well washed out, and urine clear, and be careful not to overeat. Rest before and after each meal 15 minutes or half an hour if possible, and be careful not to overdo on the bicycle. You will enjoy life as never before if you will simply live rightly.

Yours very truly,

J. H. SALISBURY.

170 W. 59th St., New York, Sept. 27.

P. S.—When bowels do not move by 9 or 9:30 A.M., then take one injection of 1 pint of warm water, with two tablespoonfuls of glycerine in it.

J. H. S.

In addition to the above he makes some comments on my own instructions in our issue for Sept. 1:

Use Enterprise meat grinder No. 10, and put beef through from three to five times, according to quality of beef. Butter is not allowed in bad cases.

IN REGARD TO THE HOT WATER.

Take water at a temperature most comfortable to the individual, but not cold.



Several years ago a farmer of my acquaintance showed me a small, insignificant-looking potato. He said he had just got it as a premium for subscribing to the *Rural New-Yorker*, and that it was the "Rural New-Yorker No. 2." A year or two later a good deal was said about this potato; but people generally seemed to be a little slow in recognizing its good qualities, and it was not until three or four years ago that I gave it a trial on our own grounds. You may remember I reported at once that it gave us the only nice good-sized potatoes, free from scab, we had that year, the season being quite unfavorable. Since then it has seemed to be steadily growing in favor. Last fall, in my absence, Ernest bought a load of potatoes, paying, as I thought, a pretty good price for them. He urged that they were worth it on account of the large size and smooth round appearance, and finally had a load of them put in his own cellar. I told him they were a nice-looking potato, but that they were not extra for table use. To my surprise he declared they were the best potatoes they ever got hold of. This, perhaps, may have been later on, toward the spring. Well, the *Rurals* are now one of the standard potatoes in our locality. Farmers who never succeeded in getting any nice potatoes before, have, with the *Rurals*, secured large yields of fine clean potatoes. The son-in-law of the old farmer who first showed me that little potato, years ago, has this season about 800 bushels from four acres of ground. Our good friend Merton G. Chase, who raises such nice crops of honey every year, no matter whether the season is good or bad, secured 75 bushels of the *Rural New-Yorker* potatoes from a quarter of an acre of ground; and they are the handsomest lot of potatoes, for a large potato, I ever saw in my life. Just think of it—300 bushels to the acre! I told him I thought he must be a high-pressure farmer as well as a

high-pressure bee-keeper. I bought all he had to spare, and the Rural New-Yorkers we have for sale include this lot. From the reports in the agricultural papers, I judge this potato has been a great boon to mankind the world over. It would be hard to estimate the good that the *Rural New-Yorker* periodical has done the world in so steadily disseminating this one potato. Perhaps it has not quite done the work that the Concord grape did for years along in the same line. And, by the way, I have just been pained to note the recent death of our friend Bull, who originated and gave to the world the Concord grape. It had been in my mind to do something toward the contribution that the *Rural New-Yorker* has been taking up for him; but I put it off, and now he is gone.

The new Craig potato resembles the Rural perhaps more than any other. The potatoes are still larger—at least, they seem so this season, and I imagine the quality is a little better. The vines, instead of standing upright, however, like the Rural, lie down and run all over the ground. In fact, the general average, when stretched up full length, are now about as high as my head. But the frost last night, Oct. 9, has wound up growth for the season. There has been some objection made to a potato that never ripens up until frost kills it. I hardly think it will hold good in this case, however. Please let us hear from you, friends, when you dig your Craigs. A postal-card report will be sufficient.

The Early Ohio and Lee's Favorite, planted the last day of June, where we picked our strawberries, gave us a good yield of nice potatoes; and the Whittaker onions, mentioned in our last issue, were put in the same afternoon the potatoes were dug; so now we have the third crop growing on the same ground during one season; and the ground was plowed up after each crop was harvested, instead of the interlapping crops by planting between the rows.

A REPORT FROM THE CRAIG POTATOES.

MR. ROOT.—I have dug part, and shall have 160 or 175 bushels of Craig seedling potatoes. I planted about 2½ bushels. The potatoes were cut to one eye, and planted one piece in a hill, 3-foot check rows, ordinary cultivation, and no manure or fertilizer. There was a little over ½ acre, but many hills did not come up—I think probably because the seed was hastily cut, and extremely dry weather at planting. They were grown on a heavy sandy loam that had grown two crops of Gandy strawberries and one of millet since manuring. I had very few small potatoes; season was very late.

Leslie, Mich., Oct. 10.

C. N. FLANSBURGH.

Now, 175 bushels, grown from 2½ bushels of seed, will be equivalent to about 70 bushels from one planted. Why, that is even better than my first experiment of last season. I planted one potato, that weighed perhaps one pound, that gave me a bushel—60 lbs. from 1 lb.; but friend F., in the report above, has made a whole field, where he planted 2½ bushels, do as well, and over 300 bushels per acre!

Special Notices.

A GOOD CHEAP PUMP.

We call the special attention of our readers to the Leader pump we offer in another column. There are few people, especially in the country and small towns, who do not use a pump. We believe you will find in this a rare bargain. It may be used for a windmill pump, but the connection for that use costs 75c additional.

CHICAGO BRANCH.

As we go to press we are loading a car of assorted stock for our Chicago branch at 56 Fifth Ave., where our manager, Geo. W. York, will be prepared within a week or ten days to supply all who find it more convenient to trade in Chicago. We will aim to keep there a pretty full stock, especially of the goods most commonly called for. Occasionally or-

ders may have to be forwarded here to be filled if odd-sized goods or something unusual is called for.

SQUARE CANS FROM CHICAGO.

We have made arrangements with a manufacturer of cans in Chicago, to fill orders for one and five gallon square cans so that we are now prepared to ship either from New Orleans, St. Louis, Chicago, Conneaut, Ohio, or from here, at \$6.50 for 10 boxes of two 5 gallon cans with 1½-inch screws; \$15.00 for 25 boxes. Orders for cans from Chicago may be sent here or to our Chicago branch. As the 1½-inch screw seems to be the standard, we have gone back to that size instead of the 1¾ as advertised in our catalog. Special low prices quoted on large lots or carloads.

FACTORY BUSY, AND RUNNING FULL TIME.

What with orders for potato-boxes and other outside work which we have taken in addition to the good demand for supplies from some sections because of a fair crop of fall honey, we have been kept very busy in our wood-working department, and have sometimes been a few days behind on orders for bushel boxes. We are now up on our orders, and are laying up stock preparatory to next season's trade. We shall be glad to hear from those who are in the habit of supplying their needs for the following season in the fall and winter, and any others in search of special prices for buying out of season. Let us have a list of your requirements. The more goods we can place during the fall and winter the better, as it helps distribute the work through the year.

ADVANCE IN PRICE OF GLASS.

There have recently been several sharp advances in the price of window glass. Indeed, present prices are about double what they were last spring. There is a good prospect that these prices will not only be maintained, but will even go higher. We have laid in a good stock of shipping-case glass at very nearly the old price, so we are not obliged yet to mark up our prices to an extent equal to the general advance in the market. Until further notice the price of strips listed in our catalog will be as follows: On all other sizes cut to order, \$3.00 per box of 50 feet.

	Price of
	10 100
3x17½ for 24-lb. single-tier cases, - - -	30c \$2.40
3x13½ for 3 row cases, - - - - -	25c 2.00
2x9 for 2 row cases, 12 lb. - - - - -	10c .80

The price of shipping-cases complete with glass will be advanced to correspond with above advances.

HIGHER PRICES ON WIRE NETTING EXPECTED IN THE NEAR FUTURE.

We have no assurance that the exceedingly low prices on wire-netting, given on third cover page of this number, will last more than two or three weeks longer. Indeed, in view of the advance in price of iron and steel made during the past few months, the present low prices can not be maintained. The manufacturers will undoubtedly arrange for higher prices the first of next month. In view of the prospect of higher prices we have laid in a stock of 200 rolls in addition to our present stock of over 100 rolls; and until further notice we will accept orders at the prices quoted in our advt on 3-inch No. 18, 2-inch No. 20, and 2-inch No. 19, the three sizes we keep in stock here. Orders for other sizes received during the next two weeks we can doubtless fill at these prices, but we can not guarantee them for a longer time; and even during that time they will be taken subject to acceptance of the manufacturers. We look for an advance of 20 to 25 per cent. It is a good time, therefore, to anticipate your needs and buy at present low prices. We have been doing this in several lines which are advancing; and, to get back the money we have been thus investing, we invite orders at the present low prices. If you anticipate using netting next season it is our judgment that you will make a mistake if you do not buy now while present low prices may be had.

ADVANCE IN WIRE NAILS.

Of the advance in prices during the past few months there have been none so radical as that of wire nails. While nails were selling last April at a base price of 85c a keg for 60d, the bottom now for the same size is \$2.85—an advance in 6 months of \$2.00 a keg, and there is talk of still further ad-

vances. While we had a fairly good stock when the advancing market set in, we were not as well provided for as we now wish we were. As we have now to buy at the higher price, we are obliged to advance our catalog prices, and append a new table of prices which go into effect from this date till further notice. Since we have adopted the practice of including nails with every thing we ship where needed, we have used a good many more nails, but have not been selling separately nearly so many as formerly. This great advance in nails, of course, increases the cost to us of all articles we ship with which nails are included; but we do not propose making any advances in the price of these articles to compensate for this increased cost.

PRICE LIST OF FINE FLAT-HEAD WIRE NAILS.

Cement-coated, except first four.

L'gth.	Wire Gauge.	No. in 1 lb.	Wt. of 5c Pkg.	No. in 1 lb.	Price of 10 lbs.	100 lbs.
1/4 in.	No. 21	17,500	2 oz.	30	\$2.60	\$23.00
3/8 "	" 20	10,000	2 oz.	25	1.80	16.00
1/2 "	" 20	7,500	2 oz.	20	1.60	14.00
5/8 "	" 19	4,200	4 oz.	16	1.40	12.00
3/4 "	" 18	2,700	4 oz.	14	1.20	10.00
7/8 "	" 18	2,350	4 oz.	13	1.10	9.50
1 "	" 18	2,000	4 oz.	12	1.00	9.00
1 1/4 "	" 17	1,200	4 oz.	11	1.00	8.50

PRICE LIST OF STANDARD (D) WIRE NAILS.

All cement-coated.

Style.	Length.	Wire Gauge.	No. Nails in 1 lb.	Price of 10 lbs.	100 lbs.
2d fine.	1 in.	No. 17	1440	10 85	\$7.50
4d box.	1 1/4 "	" 15 1/2	550	9 75	6.50
5d "	1 3/4 "	" 14 1/2	366	8 70	6.20
6d "	2 "	" 13	250	8 70	5.80
7d "	2 1/4 "	" 13	236	8 70	5.80
8d "	2 1/2 "	" 12	157	7 65	5.50
9d "	2 3/4 "	" 12	130	7 65	5.50
10d "	3 "	" 11	107	7 65	5.30
4d casing.	1 1/2 "	" 15	550	9 85	6.50
6d "	2 "	" 13	250	8 70	5.80
8d "	2 1/2 "	" 12	157	7 65	5.50
3d common.	1 1/4 "	" 15	615	9 75	6.40
4d "	1 1/2 "	" 13	322	8 70	5.80
5d "	1 3/4 "	" 12 1/2	254	8 70	5.80
6d "	2 "	" 12	200	7 65	5.50
7d "	2 1/4 "	" 11 1/2	154	7 65	5.50
8d "	2 1/2 "	" 10 1/2	106	7 60	5.30
10d "	3 "	" 9 1/2	74	7 60	5.10
16d "	3 1/2 "	" 8	46	7 60	5.00
20d "	4 "	" 6	29	7 60	4.90

SEED POTATOES FOR FALL SHIPMENT.

During the past few days there has been considerable uncertainty and quite a little anxiety among potato-growers in regard to prices. In fact, for a time it was feared, and perhaps with some cause, that our high-pressure gardeners who had been so lucky as to get 300 bushels per acre were not going to be able to dispose of them at any price. Just now buyers have appeared, however, and potatoes are moving off rapidly here and there to supply destitute localities, or localities where they are not so plentiful. While they were low we bought quite heavily; and until this stock is exhausted we are going to make you some offers below any thing we ever saw before in print.

First, we will furnish good nice large State of Maine potatoes for only 25 cts. per bushel; but at this very low figure, however, you must pay for the package. It may be a five-cent bag, or it may be a ten-cent slatted potato-box; or if you want a barrel or more, and prefer to have them shipped in barrels, the price will be 25 cts. for the barrel containing 11 pecks. Now, please do not imagine that the State of Maine is not as good as some others because it is offered so low. I believe it is generally recognized as one of the standard first-class potatoes of the present time. On our own table they are dry and mealy, and equal to any, unless it is the Freeman and New Queen.

For 35 cts. per bushel we can furnish you the well-known Beauty of Hebron, nice large smooth potatoes, good size, and free from scab. For 40 cts. per bushel we will furnish Rural New-Yorker No. 2 or Monroe Seedling. The latter are those raised by Wilbur Fenn, Tallmadge, Ohio—the late-planted I have described. These are in many respects like the second crop of potatoes for seed so much advertised in the papers. Our customers who have pur-

chased friend Fenn's potatoes heretofore will know what they are like.

Charges for the package to ship in, the same as above. The above varieties, at the low prices we offer them, are all medium size. We have no second sizes. Prices of other varieties will be as follows:

Early Ohio, Early Puritan, Lee's Favorite, will be: Peck, 20 cts.; bushel, 60 cts.; 2-bushel bag, \$1.00; barrel, of 11 pecks, \$1.50, package included.

The prices of New Queen, Freemans, Burpee's Extra Early, Livingston's Banner State, 1 lb. by mail, postpaid, 15 cts.; 3 lbs. 35 cts.; peck, by freight or express, 35 cts.; bushel, \$1.00; two-bushel bag, \$1.75; barrel of 11 pecks, \$2.50.

All of the above, except the four varieties first mentioned, will be furnished at half price for second size—that is, when we have second size in stock. Of course, this half price does not refer to potatoes by mail, because the principal expense for these is the postage. Those who want extra-large potatoes can have them by paying a half more; and this year we have extra large ones of almost all the varieties, and I tell you they are beauties.

Since the frost, to fill occasional orders we have commenced digging our Craig potatoes. The yield is going to be very large, and the potatoes are going to be very large. After digging 30 or 40 hills we found one weighing 2 1/2 lbs. Many others came pretty near that figure. In fact, the potatoes in about one bushel in every five as we dig them will weigh over a pound apiece. These we are going to put by themselves as "extra large." All below that will be "medium" until we get down to about one ounce; all below one ounce will be called "second size;" and a few, say from the size of a hickory-nut down to that of a bean, will be called "third size." Extra large will be a half more than the list prices. Second size will be a half less than list prices. The third size will be 1/4 of list prices. As the Craig potato seems to run naturally rather too large, if any thing, for table use, we need not be so much afraid to plant the second and third sizes. Another thing, in order to discourage so many large potatoes it will be really better to plant them pretty close together—say have the rows only 30 or 32 inches apart; cut to one eye, and plant the eyes in the furrow, not more than a foot apart. In this way the yield will be enormous, and the potatoes will be full size. Although the ground on which we have planted them was cropped to potatoes last year, and in spite of the fact also, that we have been much troubled with scabby potatoes on our heavily manured ground, the new Craigs are almost entirely free from scab.

Our whole stock of the New Queen and Freeman was raised by T. B. Terry—medium, extra-large, and second size—and they are about as fine a lot of potatoes as I ever saw. T. B. Terry's second-size Freeman potatoes have always been sold out long before spring; therefore if you want them you had better put in your orders early.

We can furnish new Craigs, medium size, second size, or extra large; in fact, the biggest part of them run extra large. Prices as follows: Single pound, by mail, postpaid, 20 cts.; 3 lbs., 50 cts.; 1/2 peck, by freight, 50 cts.; peck, 90 cts.; 1/2 bushel, \$1.50; 1 bushel, \$2.50; two-bushel bag, \$4.50; 1 barrel of 11 pecks, \$6.00. Package is included with all of the Craigs. If you want to see the potatoes and try their cooking qualities before purchasing, we would advise you to order a pound or so by mail, to test them.

All of the above prices are subject to an advance by our next issue. If you wish to avail yourself of these exceedingly low offers, you must make your order at once as soon as you receive this.

Here is what T. B. Terry says about the New Queen and Freeman.

FRIEND ROOT:—The New Queen! a safe standard early potato for the masses. I have advised hundreds of people by letter to get them, during the last five years, and have never heard a word of complaint. I am afraid to advise every one to get the Freeman, as they require a better culture. To those who are still growing the old Early Rose or Hebron, or some mixture of them, or some other old early potato, the Queen will be of considerable value. My seed raised in Maine cost me over \$5 per barrel there; and is strictly pure, with the benefit of the change from Maine. We are eating them every day; and a whiter, nicer potato, with as much starch in, I do not know of, except the Freeman. I myself can make the Freeman outyield them; but with mine out of ten it would probably be the other way. I will send you some to eat, so you can see and particularly taste, for yourself. All letters for the Freeman will be sent to you from now on; and all orders or inquiries for some good early potato will also be sent you. I must get rid of the worry of answering letters and filling orders if possible. Beautiful rains now. How I wish my potatoes were still growing!

Hudson, O., Aug. 30, 1895.

T. B. TERRY.

HATCH CHICKENS BY STEAM—
 With the **MODEL**
Excelsior Incubator.
Simple, Perfect, Self-Regulating. Thousands in successful operation. Guaranteed to hatch a larger percentage of fertile eggs at less cost than any other hatcher. Lowest priced first-class hatcher made. **GEO. H. STAHL,**
 114 to 122 S. 6th St., Quincy, Ill.

Circulars free. Send 6c. for this Catalogue.

5c In responding to this advertisement mention GLEANINGS

“The Southland Queen.”

Send \$1.00 for the Southland Queen. Edited by the Atchley family. Plain, practical, and all fresh bee matter. Jennie Atchley is now conducting a bee-keeping school, that began in the June number. You can get back numbers.

A steam bee-hive factory; Root's goods; Dadant's foundation.

We have a fine lot of tested and untested queens for fall trade: Tested, \$1.50 each; untested, 75 cts. each, \$4.25 for six, or \$8.00 per dozen. Send for free catalog that tells all about queen-rearing, and sample journal.

THE JENNIE ATCHLEY CO.,
 Beeville, Bee Co., Texas.

W. O. Victor, of Wharton, Tex., took

45,000 Lbs. of Honey in 1894.

He offers Italian Queens—good, old-style honey-queens—untested, first order, to any address, at 50c each. Also bees in any quantity; 450 colonies to draw from. **Root's goods constantly in stock.** Prices to suit the times. Buy near home, and save freight.

Queens, Either 3 or 5 Banded.

60c each; 6 for \$3.25. These low prices are to induce you to try them. Catalog free.

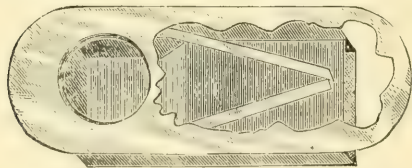
CHAS. H. THIES, Steeleville, Ill.

TAKE NOTICE!

BEFORE placing your orders for **SUPPLIES**, write for prices on One-Piece Basswood Sections, Bee Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. **PAGE & LYON MFG. CO.,**
 St. Louis, Mo. New London, Wis.

Please mention GLEANINGS 21-84b

Advantages of Bee-Escapes.



No sweat steals down the heated cheeks and aching back of the bee-keeper as the result of standing in the hot sun puffing, blowing, smoking, and brushing bees; no time is wasted in these disagreeable operations; and no stings received in resentment of such treatment; the honey is secured free from black or even the taint of smoke; the cappings are not injured by the gnawings of bees; and robbers stand no show whatever. If there are any broken burr-combs they are cleaned up by the bees inside the hive, before the honey is removed. **Leading Bee-keepers use the Porter Escape**, and say that without a trial it is impossible to realize the amount of vexatious, annoying, disagreeable work that it saves. The cost is only 20 cts. each, or \$2.25 per doz. As in the past, this escape is manufactured by the Porters, but The A. I. Root Co. has secured control of the sale for this country. Order of your dealer or of

THE A. I. ROOT CO., Medina, Ohio.

RURAL NEW-YORKER and Early Ohio potatoes, extra fine at 70c per bushel, barrels included.
EDW. SMITH, Carpenter, Madison Co., Ill.

Our Leader Pump,

For Wells and Cisterns.



We have frequently had calls for a good well-pump but have not heretofore tried to supply the demand. Having a very favorable opportunity we contracted to have made for us 50 pumps as shown in the adjoining cut. We are using one of them in a cistern, and can testify that it is a good pump, and a special bargain at the price we ask.

Equal to pumps generally sold for \$7 to \$10. Our price is \$4.50 each; 2 for \$8.00. Quantities at very low prices quoted on application.

This pump has an adjustable base and brace, making it very easy to increase or decrease the height of the pump.

It has an improved,

reversible fulcrum or handle-bearer. This fulcrum differs from all others in that it extends downward to the bottom of the reservoir-head, forming a double bearing or support, doing away with the numerous set-screws commonly used on other pumps and which are so unreliable. The handle may be set opposite or at right angles to the spout, or, in fact, in any position.

It has steel bolts and plunger-rod, making it very much stronger and more durable than the ordinary iron bolts and rod generally used in the construction of this class of pumps.

It has an improved siphon spout and reservoir, causing it to throw a smooth, steady stream.

The pump is made with 1½-inch tubing measuring 4 feet to bottom of cylinder. We will include at the retail price 4 feet of tubing additional. Extra tubing, 1½ inch, at 10 cents per foot. Cylinder is iron, not brass lined. A brass-lined cylinder can be furnished for 75c. extra.

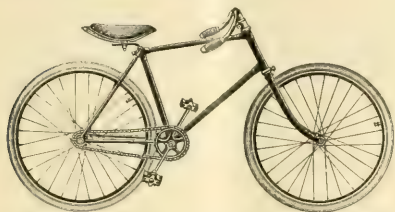
It may be used in wells to the depth of 20 to 30 feet, as well as in cisterns.

A \$9.00 Pump for \$4.50. 2 for \$8.00. Superior in every respect. Well-finished and durable. Special prices in quantities.



The A. I. Root Co.,
 Medina, Ohio.

Bicycles



I have done an extensive business in bicycles this summer, and have now on hand a number of second-hand bicycles, taken in trade or used as samples. Either these or new bicycles I will sell for the lowest cash prices, or will take honey or beeswax in exchange. Send for list.

J. A. GREEN, Ottawa, Ill.

CASH FOR BEESWAX

Will pay 26c per lb. cash, or 28c in trade, for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 32c for best selected wax. Old combs will not be accepted under any consideration.

Unless you put your name on the box, and notify us by mail of amount sent, we can not hold ourselves responsible for mistakes. It will not pay as a general thing to send wax by express.

THE A. I. ROOT CO., Medina, O.



ONE MAN WITH THE UNION COMBINATION SAW
Can do the work of four men using hand tools, in Rippling, Cutting off, Mitering, Rabbering, Grooving, Gaining, Dadoing, Edging-up, Jointing Stuff, etc. Full Line of Foot and Hand Power Machinery. Sold on Trial, Catalog Free. 1-24ei

SENECA FALLS MFG. CO.,
44 Water St., Seneca Falls, N.Y.

In responding to this advertisement mention GLEANING

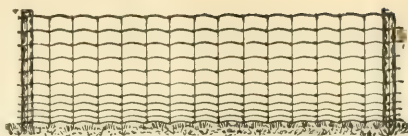
5 to 10 Per cent Discount on Bees and Supplies.

WAX WANTED.

I. J. STRINGHAM, NEW YORK.

105 Park Place.

In writing advertisers mention this paper.



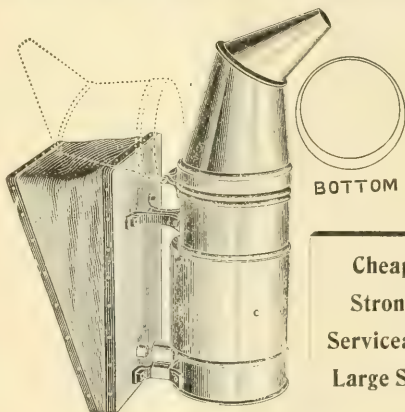
SAVED BY A DREAM.

Farmer Oak setting posts for Page fence is set upon by another agent, with a machine to "make it yourself, just as good," etc., etc., who soon talks him to sleep. He dreams he's back at the World's Fair, almost famished, can't live without a good cup of coffee, quick. Meets stranger with machine, "You buy the green berry, anything cheap, roast carefully grind in this: p-e-r-f-e-c-t-l-y d-e-l-i-c-i-o-u-s." "Oh, yes, of course, you must steep it, and sugar and cream it, takes a little time, but it's so cheap." Here the nightmare kicks the agent off the field and brings farmer O. to his senses, and he'll use the Page.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

In writing advertisers please mention this paper.

The New Corneil Smoker.



BOTTOM

Cheap,
Strong,
Serviceable,
Large Size.

JUST THE THING for those who want a first-class smoker at a medium price. Size of cup, 3½ inches; curved nozzle, hinged so as to swing back; legs of malleable iron, secured by bolts. The blast is the well-known Corneil principle. Weight of smoker, only 20 ounces. Here is what one of our customers says of it:

The Corneil smoker is a Dandy with a big D. I have been using it to-day on the crossiest colony of bees I ever saw. I think I could drive a bull-dog with it. S. R. ARSTIN, Amityville, N. Y., Oct. 15.

Price \$1.10, postpaid, or 85c if sent by express or freight with other goods.

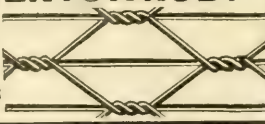
THE A. I. ROOT COMPANY,
MEDINA, OHIO.

FENCE



Why pay 60 to 90c. a rod for fence when you can make the
BEST WOVEN WIRE FENCE ON EARTH
FOR 13 TO 20 CENTS A ROD?

Horse high, bull strong, pig and chicken tight. A man and boy can make from 40 to 60 rods a day. Over 50 styles. Illustrated Catalogue Free. KITSelman BROTHERS Ridgeville, : Indiana.



HONEY COLUMN.

CITY MARKETS.

CHICAGO.—*Honey.*—Honey is not selling fast, and market is nominal. We quote best or fancy, 15; but good No. 1 stock sells at 13@14; dark, 8@10; yellow grades, 9@10. Extracted very dull at 4½@7. The amber or dark grades are in large supply. Beeswax, 28@30.

R. A. BURNETT & Co.,
Oct. 22. 163 So. Water St., Chicago, Ill.

CLEVELAND.—*Honey.*—There is no material change in our market since we quoted you on October 8. Fancy white comb in 1-lb. sections selling at 17c; No. 1 white, 15@16; choice, 14; buckwheat, 12. Extracted, white, 7@8; light amber, 6. Beeswax, 26@28.

WILLIAMS BROS.,
Oct. 19. 80 & 82 Broadway, Cleveland, O.

KANSAS CITY.—*Honey.*—We quote No. 1 white 1-lb. comb, 13@14; No. 2, 11@12; No. 1 amber, 12; No. 2, 8@10. Extracted, white, 6@6½; amber, 5@5½; dark, 4@4½. Beeswax, 22@25.

C. C. CLEMONS & Co.,
Oct. 21. Kansas City, Mo.

BUFFALO.—*Honey.*—Fancy honey is in very light receipt, and sells readily at 16@17; choice, 14@15; Buckwheat, 10@11. Clover honey could be placed to good advantage in our market. We should be pleased to correspond with those that have some. Beeswax, 28@30. Very little demand for extracted here at present.

BATTESON & Co.,
Oct. 19. Buffalo, N. Y.

BOSTON.—*Honey.*—Comb honey is in good demand and supply at 14@15; extracted, 5@6. California comb is selling well, and has a tendency to keep down the price of Vermont.

E. E. BLAKE & Co.,
Oct. 21. Boston, Mass.

CHICAGO.—*Honey.*—We have closed out three cars of California comb honey, also a number of shipments from near-by States. We are in good position to sell your fancy comb honey at the following wholesale prices: Fancy white 1-lb. sections, 14; No. 1 white, 13; amber, 12@12½; buckwheat, 10. Extracted, as to quality and style of package, 5@6½. Beeswax, 30.

S. T. FISH & Co.,
Oct. 19. 189 South Water St., Chicago, Ill.

ALBANY.—*Honey.*—Receipts of comb honey are large, especially of buckwheat; but with a brisk demand stock is moving off rapidly. There is also more clover coming forward than we expected, but quality is inferior to last season. We quote clover 13@15; buckwheat and mixed, 10@11. Extracted is plentiful, and selling at 5½@7.

CHAS. McCULLOCH & Co.,
Oct. 22. Albany, N. Y.

PHILADELPHIA.—*Honey.*—Honey has advanced in this market, with prospect of still higher advance. Comb honey sells quickly, and pure white-clover extracted sells on sight. We quote comb, dark, 10@11; choice, 14@15; fancy, 16. Extracted, 5@6; New York white-clover, 6½; western white-clover, 7½@8. Beeswax, x, 27.

WM. A. SELSER,
Oct. 22. No. 10 Vine St., Philadelphia, Pa.

NEW YORK.—*Honey.*—We have a good demand for comb honey, especially fancy grades, and it finds ready sales at the following prices: Fancy white 1-lb. glassed or in paper boxes, 15; unglassed, 14; fair white, glassed or in paper boxes, 12@13; unglassed, 11@12; buckwheat, glassed or in paper boxes, 10@11; unglassed, 9@10. No 2-lb. sections on the market, and no demand for any. Extracted is rather inactive of late, with a large supply. We quote: California, 5½@6; white-clover or basswood, 6; southern, 45@55 per gallon, according to quality. Beeswax dull at 27@28 for average quality.

HILBRETH BROS. & SEGELKEN,
Oct. 23. 28 & 30 West Broadway, New York.

SAN FRANCISCO.—*Honey.*—Extracted, light amber, 4½; white, 5½. Comb, 1-lb. frame, white, 8@10. Beeswax is scarce at 26@27.

HENRY SCHACHT,
Oct. 16. San Francisco, Cal.

DENVER.—*Honey.*—Not much change in our honey market. We quote No. 1 comb in 1-lb. sections, suitable for our cartons, 10@11c. Extracted, No. 1 white, in 60-lb. cans, two in a case, 5@6c. Beeswax, 20@25c.

Farmers bringing in small lots of honey and selling for any price offered them demoralizes our local market.

R. K. & J. C. FRISBEE,
Denver, Col., Oct. 22. Denver, Col.

KANSAS CITY.—*Honey.*—Comb honey in good demand. No. 1 white, 14@15; 2-lbs, 12@13; No. 1 amber, 11@12; No. 2, 8@10. Extracted, white, 6@6½; amber, 5@5½; dark, 4½. Beeswax, 20@25.

HAMBLIN & BEARSS,
Oct. 22. Kansas City, Mo.

CINCINNATI.—*Honey.*—Nothing new in the market since our last. Supplies of all kinds are rather scarce, yet the arrivals find a ready sale. Choice white comb sells at 14@16 in a jobbing way. Extracted, 4@7 on arrival. There is a good demand for beeswax at 20@25 for good to choice yellow.

CHAS. F. MUTH & SON,
Oct. 23. Cincinnati, O.

FOR SALE.—California water-white extracted honey, in 60-lb. cans, 2 cans in a case, at 6½c per lb. The honey is a very nice flavor, and should satisfy the most fastidious trade.

S. T. FISH & Co.,
Chicago, Ill.

FOR SALE.—30 boxes nice extracted honey, 2 60-lb. cans in a box; price 7c per lb.

JNO. A. THORNTON, Lima, Ill.

ALFALFA HONEY, very white, thick, and rich. Two 60-lb. cans at 7c. Same, partly from clover (tinted), 6c. Samples, 8c.

OLIVER FOSTER, Las Animas, Col.

ALFALFA IN ARIZONA.—We will sell you alfalfa honey F. O. B. Phoenix at 4½c in 1000-lb. lots or more. Less than 1000 lbs. at 5c in five-gallon cans. Car lots a specialty.

J. P. IVY,
Secretary Bee-keepers' Association,
Phoenix, Maricopa Co., Arizona.

WANTED.—A quantity of white-clover and basswood honey. Must be *gilt-edge* and *cheap*. Send samples and prices to

W. E. SKINNER, Takoma Park, D. C.

WANTED.—To buy quantity lots of fancy comb honey. Also to sell water-white extracted honey in 60-lb. cans.

B. WALKER, Evart, Mich.

FOR SALE.—Buckwheat and amber extracted honey in half-barrels, about 150 lbs. each; well ripened. Prices on application.

J. I. PARENT,
Birchton, Saratoga Co., N. Y.

FOR SALE.—1200 lbs. of honey, in 60-lb. square cans, 6½ cts. per lb., f.o.b. cars here. Sample by mail.

R. H. BAILEY,
195t Ausable Forks, Essex Co., N. Y.

FOR SALE.—We have 14,000 lbs. of choice white extracted honey, in barrels of about 400 lbs., at 6 cts. per lb., f.o.b. cars at apiary. Sample mail for 8 cts. in stamps.

THE CROSBY CO.,
San Mateo, Fla.

Extracted honey in barrels at 6½ cts., or in 60-lb. pails at 7c.

CHAS. DADANT & SON,
Hamilton, Hancock Co., Ill.

FOR SALE.—Utah comb honey, 1-lb. sections, 24-section cans (honey white and package very desirable) at 13 cents per pound. Cash before shipment. This is a chance for some of our bee-keepers, if they want to buy.

S. T. FISH & Co., Chicago, Ill.

EDITOR GLEANINGS.—Please allow us to explain why we offer comb honey at 13 cents per lb. This Utah honey is very fancy. The association sent their cars to this market, and we bought it and are making a small profit on the above sale. Thinking that some bee-keepers might want to buy, and wishing to show them that we are willing to offer at fair margin, we give the adv't. We must have cash before shipment, as we can not open accounts with bee-keepers. As a rule, they have no commercial rating, and we have no guide by which to know that they are entitled to credit.

S. T. FISH & Co.
Chicago, Oct. 26.

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CONVENTION NOTICE.

The annual meeting of the Illinois State Bee-keepers' Association will be held at the Statehouse, Springfield, Nov. 19, 20. The Odd Fellows of Illinois hold their grand encampment, beginning on the 19th; and we have it from their committee on railroads that they have secured open rates of a fare and a third—that is, a round-trip ticket—is to be purchased at starting-point, anywhere in the State, for 1½ fare. The special meeting of our association will be held at Chicago, at the New Briggs Hotel, Jan. 9, 10, 1896. As this is the occasion of the National Cycle Show, we can get reduced rates to that meeting. Further particulars later. Jas. A. Stone, Sec., Bradfordton, Ill.

CHAS. ISRAEL & BROS.,

486, 488 & 490 Canal St., Corner Watts St., N. Y.

WHOLESALE
DEALERS &
COMMISSION
MERCHANTS.
Established
1875.

HONEY

—AND—

BEESWAX.

LIBERAL
ADVANCES
MADE
ON
CONSIGN-
MENTS.

BUFFALO, N. Y. Unsurpassed Honey Market
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb and Prompt

CLOSING OUT!

Warranted Italian queens, at 60c each; 4 for \$2.00. Tested, \$1.00 each; 4 for \$3.00. Select tested, \$1.25 each; 3 for \$3.00. Don't let this chance slip. Safe arrival and satisfaction guaranteed.

J. P. MOORE, Morgan, Pendleton Co., Ky.

Promptness is What Counts.

Honey-jars, Shipping-cases, and every thing that bee-keepers use. Root's Goods at Root's Prices, and the Best Shipping-point in the Country. Dealers in Honey and Beeswax. Catalog free.

WALTER S. POWDER,

162 Massachusetts Ave., Indianapolis, Ind.



Potatoes.

Craig's Seedling, Everett's Early, and Freeman, at prices given by A. I. Root.

W. B. Collins, Blackwater, Cooper Co., Mo.

BEGINNERS.

Beginners should have a copy of the Amateur Bee-keeper, a 70-page book by Prof. J. W. Rouse. Price 25 cents; if sent by mail, 28c. The little book and the Progressive Bee-keeper (a live progressive 28-page monthly journal) one year, 65c. Address any first-class dealer, or

LEAHY MFG. CO., HIGGINSVILLE, MO.

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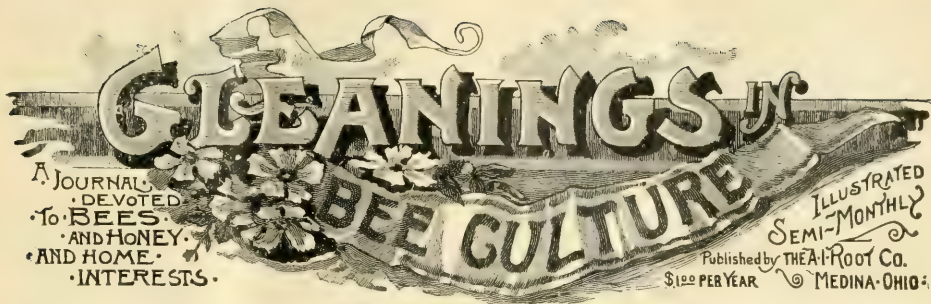
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Bell Branch, Mich.



Vol. XXIII.

NOV. 1, 1895.

No. 21.

STRAY STRAWS

FROM DR. C. C. MILLER.

A GLORIOUS ENDING was that of our grand old friend father Langstroth.

FREEMAN POTATOES have done well here, and what beauties they are! Rural New-Yorker No. 2 is also fine.

IN THE DISCUSSION as to five-banders, the fact is not as generally recognized as it should be that there are five-banders and five-banders. It seems that some of them are Italians, others not. Why should they be alike?

THE FALL YIELD in this locality doesn't usually amount to much. I think it was better this fall than ever before. Now, if the bees that have got into the way of storing will only keep in the same mind next spring!

STRAWBERRY-PLANTS kept in hills is a superannuated plan in the West, voted out years ago. But latterly it seems to be coming in again, and I saw at Freeport a fine bed kept in hills. Mr. Cotta claimed it was little more work than the matted-row system.

MY FIRST MEETING with father Langstroth was at Cincinnati in the winter of 1872-3. He very kindly called to see me at my office where I was helping to get up the first of the great May Musical Festivals under Theodore Thomas.

YOU CAN GUESS pretty closely at the amount of stores in a hive by looking at the tops of the combs; but you can come closer to it by weighing each hive, and you can do it in less time. Make abundant allowance in every hive for weight of pollen and extra weight of old combs.

LET US KNOW MORE about rape. Do others find it as profitable for forage as Jas. Pratt? In Germany bees are moved to the rape-fields. Is the Dwarf Essex also good for bees? [I should like to have our readers who may have had experience along these lines speak out.—ED.]

LANGSTROTH AND QUINBY are both gone; but the Germans still have their Langstroth, the revered Dzierzon. Only three of the 40 great wander-conventions has he missed since their commencement in 1850.

IN THAT DESCRIPTION of alfalfa on p. 778, doesn't friend Taylor mean it looks like *sweet* instead of *red* clover? When not in blossom, alfalfa is very hard to tell from sweet clover. Just look for sweet clover with purple blossoms or snail-like seed-pods and you'll have alfalfa. Can't miss it.

A MAN IS CRUEL to his team who allows a weight of 200 pounds of frozen mud to remain on the wheels of his wagon. He's cruel to himself if he allows himself to carry around 25 or 50 pounds of useless fat. Since reducing my weight 20 pounds, it's a good deal easier to carry my carcass around.

EVEN THOUGH not interested in shipping queens long distances, one can not help admiring the adapting of means to ends in that cage pictured on p. 774. Few lines of business set to thinking about and planning new implements and methods more than bee-keeping, and few lines contain brighter thinkers and planners.

"ALL IMPURITIES are left behind when water is turned into steam," says S. S. Butler, p. 770. I don't know about that. When a pot of meat is cooking, the water is turned into steam, but that steam has a pretty strong odor, and carries with it something more than pure water. If boiling kills all poisonous germs, can evaporation do more?

MORE AND MORE I come to the view that I don't want to see sweet clover grow six feet high. I think more honey in the long run will be had from it if it is kept cut down or eaten down so that it never gets more than two or three feet high. [I think you are right—at least, the clover that stock browse down seems to be more thickly covered with bees.—ED.]

STOP MY PAPER! It isn't a safe thing to be lying around where children can read it. When J. P. Israel talked about cross-eyed bees that

was bad enough; but when Rambler talks about pulling the bottom out of a well, that's "lying around" too much. Why, you can't pull the bottom out of a well, and bees never get cross-eyed. Stop my paper!

MY PREJUDICE is decidedly in favor of five-banders on account of their beauty, and I wish with all my heart that we could rely upon profit in exact proportion to beauty; but facts can not be ignored, and I suppose we must give up that many of the five-banders are inferior. The charge as to poor wintering seems pretty fully established.

SOMEHOW that straw at the head of the second column, Oct. 15, seems to have had its head knocked off. But the heads of straws have no grain in them anyway. [We plead not guilty here. I don't agree. The "straws" very often—yes, generally—have bigger heads with kernels in them than the Heads of Grain. In reality this department should be christened Heads of Grain, and the other now bearing that cognomen, "Bundles of Straw," but you know I don't believe in changing names.—ED.]

LET UP, Mr. Editor, on calling my language slang. If you will look in the dictionary you will find that "let up" is not slang but colloquial. I am surprised to find that "catch on" is also colloquial. But I like apprehend or "understand" better. I'm rather in favor of using slang when it expresses what can not be expressed by straight English. [So am I; but it strikes me that much that has come to be regarded as colloquial is really slang. As to "catch on," it expresses more to me than "understand." The latter is too tame.—ED.]

MY CONCLUSIONS don't entirely agree with those of J. P. Israel, p. 771. I think foundation in sections will keep a long time without losing any of its "internal arrangements," if kept from the bees; but if left too long in the hive when no honey is gathered, especially late in the season, its "external arrangements" are so disarranged by the bees that they'll not use it. I have thousands of sections filled with foundation. [How is this, friends? Let us have testimony from a good many others. The proper answer to this may mean a good deal to some.—ED.]

"HE'LL REDUCE his weight till he reduces himself into the grave," is the remark one of my auditors made when I read the first sentence on p. 782. [No, he won't. He is gaining now, and your humble servant on the same treatment is now gaining three pounds a week, and I shall soon be in full flesh again. My normal weight in health is 140 lbs. After being on the diet for a few weeks it got down to 117. "Alarming," you say; but Dr. Lewis told me I must expect to lose weight; that I must, as it were, throw away useless waste material and build anew. Am I doing it yet? Yes, str.—ED.]



NUMBER OF BEES TO THE POUND.

DO BEES PREFER NEW OR OLD COMBS?

By Philip J. Baldensperger.

Mr. Root:—The question seems to agitate bee-keepers to some extent as to how many bees there are to the pound; how many pounds to the swarm; how many eggs a queen lays a day; bees carrying eggs; and old or new foundation, which preferred? We all know by experience, and by having read in divers periodicals and books, that the number of bees per pound differs according to race, and more especially their condition when weighed, whether full or empty, or, I may say, very empty, and perhaps an infinity of conditions—very full, half full, and so on. Mr. A. I. Root, if I remember well, some years ago said in GLEANINGS that 25,000 bees in a colony was what he deemed about right. In your footnote, p. 585, Aug. 1, 1895, you give two conditions—4500 to 5000 per pound before swarming, and 3000 to 3500 when filled with honey. This last number is about what Simmins and Cheshire find in a pound, while your first number, 5000, is given by the Abbé Voirnot—perhaps one of the most eminent French bee-keepers. Cheshire, Vol. II., p. 263, put 10,300 bees to the pound; and he found that 3000 *dark* bees filled with honey make a pound, and 4500 to 5000 *yellow* bees per pound, filled. Of course, colonies may vary greatly, from 4 to 10 lbs., while I think an average good colony, swarmed out in fair condition in spring, when flowers are abundant, would weigh 7 or 8 lbs. Here, again, opinions differ very widely, I may say; for Mr. Hyde, on p. 585, says 8 lbs. of 3000 bees each equals 24,000 bees; and you indorse his opinion, which, I am glad to say, I suppose is nearer the truth than any other figures.

Authorities on bees differ greatly as to the number of bees in a hive. Mr. J. Hewitt, in the *British Bee Journal* for July 1, 1884, says 76,000 worker-bees, and believes that something like 200,000 bees in a hive at a time may be found. Abbé Martin says 100,000 workers, which figures he arrives at by multiplying numbers which have almost "become, in bee-keepers' minds, an established error.

You can hardly see a book or article but you read of 3000 eggs a day. Suppose, now, these 3000 eggs are to be multiplied by 21; that makes 63,000, and this goes on. Another one says it is known that one bee brings in $\frac{1}{7}$ of a gram, and remains 10 minutes on a trip, and works 8 hours a day. This equals so many pounds; hence so many bees. But there are a great many *but*s which must always be remembered; for neither does a queen lay 3000 eggs *every* day, nor is the

laying at all regular; nor do bees fly out at regular intervals; and still much less do they come in so, nor with uniform loads; nor do they live uniformly six or eight weeks during the working-time, nor 6 to 8 months during winter, or, at least, during the time of repose. I will give a few notes later on, collated during many years of close observation as to numbers. Let me here say, that, as nearly as I could make out, 35,000 to 40,000 bees is the average of a *colony* — not a *swarm* — note that. A swarm can never be as strong as a colony, as the swarm issuing is part of the *average* colony; thus, a colony ready to swarm may push the queen to laying up to, say, 50,000 workers present; a swarm issues, and 25,000 bees are left in each camp, including, of course, some old bees.

NEW OR OLD COMB.

But now comes another question: Suppose, to start with, we put the 24,000 bees into a hive, according to the condition of the comb. Old comb is, in my opinion, undoubtedly best to begin with; and here Dr. Miller and his correspondents, on page 634, Aug. 15th, agree on one point. Every question has many sides; but especially so with bees; as almost always, whenever a question is set forth, it must be put under certain conditions; thus, in *Stray Straws*, June 15th, "Please," says, Dr. M., "keep watch and tell us whether a queen prefers to lay in new or old combs; also which the bees prefer to store in." Immediately we would put the question to ourselves as to whether the queen is surrounded by blacks or Eastern or Ligurian bees, and at what time of year. My experience leads me to say that a swarm newly hived, or a colony in fair condition, with old and young bees hatching, working on old comb, will draw out comb foundation introduced into the brood-nest, over night, and one will be very sure to find the flat comb foundation, introduced in the evening, containing eggs in the center about 7 or 8 o'clock next morning; also some drops of honey, and even pollen, near the top, provided it is during a good honey-flow, and in spring. Of course, it pleases the eye, when looking in next morning, to find the yellow foundation turned into an almost snow-white comb, and inhabited by bees, as though it had always been there; and beginners in general, and even bee-keepers of many years' experience, not carefully examining the question, are led to believe that bees prefer the new combs, and simply because it pleased their sight and feeling as to durability.

In France the opinion has been held by many, that, between 4 and 6 years, the combs are too old to be of any use to the bees, as the cells are by that time too small, on account of the successive generations of bees hatching in them, and because they "darken the honey." This last opinion is due to the dark sealings. Every one knows that bees will seal their honey very near the color of the comb; and here the races

give different color to the sealings of honey. I have frames and combs that have been in use ever since I began bee-keeping; and when we first started we bought jar hives which had been used many years, so I know that twenty-year-old comb is very good, and I would not call it old; nor am I now discarding any.

A correspondent of mine bitterly laments my having sent him dark comb with the colonies he ordered of me, although I had to explain to him (a man who boasts of twenty years' experience in bee-keeping) that old comb is better than new to start with a nucleus; and, secondly, that on no condition will I send newly built comb, loaded with bees and brood and honey, through the mails, and that for the sake of both of us; for although the seller always guarantees safe arrival of his queens, every one knows how disagreeable it is to receive a queen or colony in bad condition. He'll have to wait a few days more, perhaps a few weeks; but he wanted to start at once, right into the honey-flow then abounding in his or her locality. The bees are obliged to secrete wax, many writers claim; but, on the other hand, they ought to have said, "In spring, bees will secrete wax with great facility, and to some extent must do so." This would be correct. This is chiefly from such men as like to combat mobilists; or, if they get to be mobilists, comb-foundation manufacturers; but bees can build comb foundation, and secrete wax, to a small extent, almost every spring of the year, and not more. Suppose, for an instant, those writers to be correct in their views; what do they do with the stock of bees in a tree, sending out swarms year after year, and good comb-builders in the bargain, without ever building any comb in the old locality? They breed in the perhaps half-century-old comb, store honey, and, in years of scarcity, remain there. The wax-secreting organs are not at all changed in the succeeding generations, because, for at least 18 months, no swarm issued; and, consequently, no wax was secreted; but let us for an instant follow a swarm, issued April 1, hived entirely on foundation, as there was no old comb to spare. In about 15 days, during a fair honey-flow, the bees have drawn out 10 to 15 combs; and let us suppose that honey is coming in. We add a story, and 10 or 12 combs are built. The wax-secreting organs have been exercising their functions to their fullest extent. At the end of May, of course, not a single bee of wax-secreting memory is living, and the generation now filling the hive is from 1 to 40 days old. Not a single bee has had any occasion to secrete wax, because the hive is complete. The first-hatched bees are rapidly dying off. About the end of June, 60,000 or 70,000 bees will have passed away, having carried in honey and pollen, and water-nursed the bees, but never secreted any wax. The extractor is worked as often as necessary, giving the

bees a chance to make continual visits, and many more chances to secrete wax; to repair the wear and tear caused by uncapping and many other operations.

As a rule, bees will not build foundation in summer during a very light honey-flow, provided a good number of old combs are given to the hive. I have tried it time and again, putting in a sheet of foundation to every three or four old combs, to find, a fortnight later, the old combs filled with honey—often, also, with brood, and the foundation left untouched in the middle, even though on some occasions it would be introduced right into the brood-nest, and left untouched, or a few cells be drawn out in the center, "*par acquit de conscience*," eggs laid, and sealed, and that was all. Honey is generally stored right above the patches of brood. The bigger the combs, the more concentrated you may find the brood and honey; while with smaller combs, honey is discarded in cases of a fast-laying prolific queen; but, again, in spring, as the season advances, honey is brought nearer; the patches of brood are rounded to take the winter-clustering form, and honey is put around, and old comb is utilized in preference, as being more firm. Perhaps, also, the dark color is preferred by bees. They do not want any light inside the hive, and so, perhaps, discard the light-colored comb at the approach of winter. As a rule, of course, there may be exceptions.

Nice, France.

[You will find an article bearing on this same subject, on page 699, Sept. 15th issue. Thanks for the additional light you have given us.—Ed.]

RAMBLE 142.

CROSSING THE TEHACHAPAI MOUNTAINS.

By Rambler.

In the Tejon Pass we crossed a portion of the great Beal Ranch, containing 350,000 acres. Gen. Beal, of the U. S. Army, and at one time Surveyor-General of the State, accrued to himself the above territory. The method of accruing it, it is said, was intensely crooked; but as the general has exchanged the title to the 350,000 acres for a little parcel of ground 2x6 feet, and gone to the country where the crooked shall be made straight, I do not feel like accusing him of misdeeds now. Upon the ranch are 15,000 head of cattle, hundreds of horses, and hogs; in the mountainous portions grizzly and black bears, deer, antelopes, and much smaller game. It was a game country, and Bro. Wilder would have explored its ragged recesses at any other season.

The Tejon Pass, for the greater part of the way, is a rough and ragged canyon. Reina had regained the control of her foot again. She seemed to reserve her lameness for Sunday

travel only; and before night we arrived at the adobe home of our poetical Irishman, and we camped in the park of noble oaks that surround his house. In the evening we gathered around a roaring fire that sent the sparks up the chimney from a capacious fireplace; and how true it is with us lonely bachelors that "A fellow feeling makes one wondrous kind"! Our friend the poet was a good conversationalist, and the pleasures of the evening tripped lightly along until there came an ominous knock at the door. "Come in!!" cheerily said our host. The door opened, and a short, thick-set, powerfully built, black-faced, black-eyed, black-bearded Mexican appeared. "Come in. José" (Ho-say). They both laughed, and clasped hands like the dearest of friends. José unbuttoned his coat, and from an inner pocket he pulled a long black bottle and placed it on the table. The men again laughed, and clasped hands.



THE POET'S HOME IN TEJON PASS.

Our host, who had been somewhat sedate in conversation, was now visibly enlivened. The bottle rested not long upon the table; the cork was drawn and glasses filled. As guests we were offered a generous allowance; but Bro. Wilder and I could not afford even here, in the cabin of our convivial poet, to break over our rules of temperance, so we politely declined. José and our host, however, attacked the bottle and clinked their glasses together for health. The clinks became quite frequent, José quite musical, and our host poetical. We observed that the performance would last until a late hour, and we bade the performers good night and sought our tent and our slumbers.

We were aroused some hours later by voices near our tent singing a farewell song—softly, then swelling in harmony, José's deep bass voice and the poet's tenor. For a full half-

hour this tender farewell trembled wierdly upon the night air. The agony of farewell was enough to sever two loving souls a thousand miles apart and for years; but José lived only three miles down the canyon, and expected to see his boon companion the next morning. The agony of parting ended at last, and José rattled off down the canyon with his horse and cart, and we were left again in quietness. In the morning our poet host was not so lively, and perhaps he was a little shame-faced before us. We learned from him that he was a voluntary exile from his wife and children, and had not seen them for three years, and they lived in a moderate city less than a hundred miles from his lonely retreat. His abilities were such that he had held county trusts, and his poetical gems had assumed book form which had met with favorable sales. His family were bright and well educated, and moved in good society; "and," said he in a tone of sadness, "you saw last night why I live this lonely life." His convivial habits when at home were continually bringing disgrace upon his family. I relate the incident as the best kind of a temperance lecture; and we are again admonished by it to "taste not, touch not, handle not." Our poet could handle bees, and had tried bee-keeping; but his habits and the business did not agree. The bees, it seems, had a certain love for him; for in the morning he showed us some of the oak-trees that were around his cabin, the hollows of which were occupied by bees. Seven trees bore burdens of sweetness, and he said there were several more in the canyon, but no near bee-keepers.

Our farewell was not so tedious or musical as the one of the previous evening. After our brief parting compliments we continued up the canyon and were soon upon the summit of the Tehachapai range of mountains, about 4000 feet above sea-level.

Our route was now down grade, and our ponies made good time into Antelope Valley, so named from the immense herds of antelope that only a few years ago roamed the plains. Now the bands are few and scattering.

At Neenach we found one store, a school-house, and one residence. They had something of a trade from the surrounding country. We had an excellent opportunity to observe, for we sat around the stove all day. A rain had taken possession of the country, and we were thus delayed. We diligently inquired of the ranchers and hunters in relation to the honey resources of the valley, and found varying opinions in relation thereto. The valley is very broad, and the bee-men seemed to be located in the distant foot-hills, where some of our informants said large yields of honey were produced.

The next morning, though the skies were threatening, we pushed on again toward Elisa-

beth Lake. We passed through a new experience on the way. The shepherds were tending their flocks upon the hillsides, and they were in trouble. As we traveled up a long grade we saw here and there the carcass of a dead sheep; and as we neared the main herd the dead sheep became more plentiful. The cold storm saturated their woolly coat, and the weaker ones soon became chilled, and dropped by the way. As soon as a sheep would drop, its throat was cut and its hide stripped off and packed upon a burro. Several burros were thus laden. The sheep-men said they had a flock of 4000 sheep, and would think themselves lucky if they could get out of the hills with 3000. So sheep-men have their losses as well as the bee-men.

When we came through the narrow pass above Elisabeth Lake we were met by a fierce wind and rain. It seemed as though the elements were opposed to our further progress. We were soon drenched to the skin. The little lake was lashed by the fury of the storm, and we were greatly pleased to find shelter from the storm at the stage station. We here found again a generous Missourian, who had lived upon the shores of the lake for many years. He had joined himself to the country in a truly heroic spirit, and had not only grown up with it but had added largely to its population by marrying a Spanish woman; and the result was a houseful of mongrels. The rain had driven them all into the house, with a few of the neighbors thrown in, and it was a motley crowd that gathered around the ample fireplace and its generous heat. Bro. Wilder and I were so thoroughly wet we were given a warm corner where we proceeded to dry out our garments. It was of interest to note that two full-grown señoritas flashed glances from their dark eyes toward my partner. I was pleased to observe that he was not especially taken with the style of half-breed beauty.

After getting used to the situation I noticed two young American ladies in a far corner. They were very quiet, and did not seem to mingle much with the rest of the occupants of the room. I noticed some of those tell-tale lines running from the corners of the eyes, and others running down somewhat slanting from the corners of the mouth. The hair was trained down to a smooth habit; the dresses were plain striped calico, about eight-cent goods, and possessed a little narrow white collar, starched. In the lap was a checkered gingham apron with white pockets on the right and left, duly puckered. The tendency of the arms was toward an akimbo habit, and there was a severe cast to the countenance, a frigid dignity to the general figure. I could almost see hickory rods in their hands, and with some solicitude I edged my chair up to the side of our host, and, pointing my thumb over toward the

corner, I whispered in his ear, "Schoolma'ams?" "Yes, schoolmoms," said he, in a stage whisper, "both on 'em; sistern; one teaches our school; the other, the one over in Grimes Canyon. I tell yer, that oldest one, the one that teaches our school, has the most sassafras about her, though."

Partner caught the word "schoolmom," and it seemed to electrify him at once. I was again in a state of consternation; and, while he was frantically trying to dry all sides of his body at once, I felt greatly relieved to see the schoolma'ams retire to an inner room; the girl with a sassafras reputation brought up the rear in good order. A sly word to our host, and he kept them corralled in that obscure portion of the house until we departed early the next morning.

Our Missourian had at one time been a bee-keeper to the extent of a hundred colonies. He said that the locality was too cold and windy, and he could get but little honey, and so gave up business. I reflected upon the matter, and came to the conclusion that a man who owned several hundred head of cattle, and could not bring down from the hills one cow to provide milk for his numerous youngsters, would not succeed with bees in the best of pasturage. He lacked what he applied to the schoolma'am—sassafras.

THE T SUPER VS. THE SECTION-HOLDER DEVICE.

AN EXCHANGE OF LAST SHOTS.

By Dr. C. C. Miller.

I may as well confess, Mr. Editor, that you have made on page 517 a better plea for the section-holder than I supposed was possible; and I am much obliged to you for putting your plea in definite, orderly shape. I'll try to accept the truth that is given, and show, if I can, wherein there may be error.

Your first argument is one that should have weight; and if you find a large number using section-holders or modifications of them because, after trying both, they prefer them to T supers, that should make a heavy score in favor of section-holders. At the same time, it must be remembered that one modification of the section-holder (the wide frame) is a good deal older than the T super, and many are using it who have probably never tried the latter. Indeed, I suppose there are many who have never tried either of them, and are, perhaps, wondering why we are quarreling as to which is the better of two articles, neither of which they would have for their own use.

You make six distinct claims as to the superiority of the section-holder. I'll take them in order:

In No. 1 you say, "In some localities it is desirable to shift the outside row of sections to the

center, and *vice versa*." I think that isn't true. Now, mind you, I'm not saying you're a liar, only I don't believe it is true, just as I don't believe some of the other things you say, although you *may* be right and I wrong. And this brings up a proper subject upon which to have light thrown. We ought to know whether it is or is not desirable to have sections change places. It is possible that I may be convinced—and, what is more to the point, that others may be convinced—that, in certain places, it's a good thing to jump sections. If you've got any light, turn it on. At present, No. 1, I think, stands "not proven." If that point be proven, I'll go farther than you, and say that the section-holder is well fitted for such interchanging, and the T super isn't fitted for it at all.

No. 2 stands. I'd rather have fewer loose pieces than the T super has.

No. 3 is a case of special pleading that won't stand; for we're not talking about the abuse but the proper use of things; and you admit that, with proper use, sections are square in T supers. I can prove by your own words that the slats on which sections rest in section-holders will sag, and I think you know that T tins do not sag. That makes it so that proper use will result in none but square sections in the T super, and at least some sections a little out of square in the section-holder.

No. 4 I'm willing to admit, in plain Roman letters; but when you call the advantage *important*, in italics, that's carrying it too far.

No. 5 is another case of special pleading mixed with what I believe to be erroneous statement. I very much doubt that the great majority of bee-keepers put sections on the market unscraped. Perhaps a better way to put it is to say that I think the majority of sections put on the market are scraped. Even if what you say were true, it's not the right thing to tell a beginner he should use an inferior article because it best fits careless and slovenly bee-keepers; for no less an authority than the A B C says, "In order to make sections present a clean marketable appearance, all propolis should be scraped off."

But this difference you are speaking of, be it more or less, is only on the edges of the section; and the important part to scrape and have clean is the top, and I suppose you would hardly say there is any difference as to tops in the two supers.

No. 6 contains a view that you may be excused for holding, on account of your relying on antiquated authorities. Allow me to lay my modesty aside long enough to say that the man who wrote "A Year among the Bees" didn't know as much about producing comb honey as I do; and he didn't know the best way to engineer a T super. None of that complicated machinery of which you speak is used except a single board as a follower to push out the sec-

tions. You say, "The section-holder arrangement may be emptied by simply removing a wedge or tightening-strip, and then all are practically loose." That's a fine example of the way to teach an error by stating a truth. The words you say are strictly true; but the inference likely to be drawn—namely, that something quite different rules with the T super—is the reverse of true; for loosening the very same wedge in the T super leaves the sections just as loose, and the manner of emptying is just as "self-evident," in one case as in the other. So No. 6 falls to the ground with a "sickening thud." But I forgive your attempt to deceive in No. 6. It doesn't come so much from a bad heart as from blindly following the teachings of a man so far behind the times as the writer of "A Year among the Bees."

As to the matter of looks of the T super with one or four cleats, you are not paying a very high compliment to the good sense of bee-keepers when you say that 99 in 100 would reject the thing because of its looks. I have a better opinion of them. But when you say, "The outside cleats on both ends are intended in lieu of hand-holes," I give in. I think I like the four cleats.

You repeat one of your former arguments, and thus compel me to repeat my reply. No. I am not as much accustomed to the section-holder as to the T super; but it doesn't necessarily follow from that that I can't see the advantages in something new: and the proof of that lies in the fact that, when I knew as much of wide frames as I now do of T supers, and as little of T supers as I now do of section-holders, I nevertheless changed from the old to the new, and am I not just as likely to see advantages in a new thing again, if those advantages really exist?

And speaking of wide frames reminds me that I ought to remind you that you have not told us what advantage the section-holder has over the old wide frame. If it's no better than the wide frame, and the T super is better, does it not logically follow that the T super is better than the section-holder?

Now I think I'll leave you to sum up the differences between us and agree not to talk back, asking you not to forget that any width of section can be used in the T super, and only one width in the section-holder. I don't know for certain what width is best. Do you? After using many thousands $1\frac{1}{2}$ wide I changed to $1\frac{1}{8}$, and I should very much dislike, by adopting a section-holder, to contract to use nothing narrower than $1\frac{1}{8}$ for the rest of my life.

Marengo, Ill.

[Then you don't admit proposition No. 1. Suppose you turn to p. 741, Doolittle's article, and see how he manipulates rows of sections. Remember that he and a host of others use single-tier wide frames; and one of the main reasons, if I am correct, why they use them is the

facility afforded in transposing rows of sections over the top of the brood-nest. The only difference between these and section-holders is in the use of a top-bar. Knowing in the first place that a large number were following Doolittle in the use of what is now known as the Doolittle surplus arrangement, we adopted the section-holder device, which is, to all intents and purposes, the same thing. P. L. Viallon, once the leading bee-man of the South, was, and for aught I know is now, an earnest advocate of the Doolittle arrangement. With either this or the section-holder proper, and intelligent manipulation, we can avoid hundreds of pounds of unfinished sections; and this may mean profit as against actual loss.

Before I leave proposition No. 1 I must say that our position as supply-dealers and publishers puts us where we can see what bee-keepers are using and calling for. The T super has had its day among the great majority of bee-keepers, no matter how well a few, like yourself and some others, may like it. Why? Among other reasons, because it favors the production of unfinished sections—something that can be more easily avoided with single-tier wide frames or section-holders.

If No. 2 stands we will pass on to No. 3. I contend this is not a case of special pleading. You say we are not talking about the abuse but the proper use of a thing. Isn't it rather this way? In the language of President Cleveland, we are "confronted by a condition, not a theory." The "theory" is, that sections in T supers can be held square by the use of a lot of extra fixings. The "condition" is, that the majority of bee-keepers (not won't but don't) fuss with these strips of wood that require so much care in adjusting. Bee-keepers do not, as a rule, stop to take the "diamond" shape out of the sections in T supers, as you would find if you bought honey by the ton and carload from all over the country as we do. Neither do they scrape those same sections.

This brings us to point No. 5; and here again we are confronted with a "condition;" and that condition is the most satisfactorily met by the section-holder.

Suppose we say that our present spelling is an abuse in the use of superfluous letters. We can not ignore that abuse as you would have us do in the case of the non-scraping propensity of the majority of bee-keepers. We must take it as it is, as we do every day in spelling. If the section-holder, when keyed up with slotted wood separators, gives cleaner sections without scraping, and truer in shape, then it is the better arrangement. As to your other points, I would refer the reader to my former statements to which yours are in reply.—Ed.]

THE PURITY OF CALIFORNIA HONEY.

THAT HALF THE HONEY PRODUCED BY CALIFORNIA HAS BEEN ADULTERATED WITH GLUCOSE, AND SENT EAST, NOT TRUE.

By Geo. W. Brodbeck.

Friend Root:—I am very much disposed to take exception to the publication of such a sweeping statement as the one made by C. W. Dayton, in GLEANINGS, page 729, that "half the honey produced by California has been adulterated with glucose, and sent east by a few, if not very few, wholesale firms." A statement of this kind, and of which you your-

self say, "I can not believe is true," ought to be consigned to the waste-basket unless accompanied by at least some substantiating evidence in support of it; and yet this does not contain a single shadow of evidence in support of it. In spite of your assertion, "I don't believe it," the very fact of its publication in one of our leading bee-journals will result in a reproduction in other papers, minus your footnote.

Our situation in connection with this case is a rather peculiar one; for, to sum up, we of necessity become the defendants, and the burden of proof is demanded of us, which, as a rule, devolves on the plaintiff; but necessity compels us to avoid any exception to this unusual mode of procedure, and we trust the truth and nothing but the truth will be forthcoming.

Our home market is so limited, and our product some seasons so great in quantity, that our only source of disposal is the honey markets of the East; consequently, whatever is said or done reflecting on our product destroys confidence, thus limiting the demand and lessening the price; and if this is true, any reflection or insinuations as to the purity of California honey, be it true or not true, is a question of vital import to every California bee-keeper.

'Tis true, I have heard something of adulterations in California, and I have endeavored, as far as possible, to sift out and digest these circulating rumors as far as it has been within my power to do so; and, with one exception, I have yet to glean any evidence in support of adulteration in this, the largest honey market in California. You, in all probability, know something in regard to freight rates to this coast, and in consequence can form some idea of probable profit in shipping glucose out here to adulterate honey with (glucose is not manufactured out here), and then reship to the eastern market, and this when honey has been selling as low as $3\frac{1}{4}$ to $3\frac{1}{2}$ cents in any quantity; and as probable gain would be the only inducement to do this, I fail to figure any possible profit at present prices.

Since reading Mr. Dayton's statement I have consumed the greater portion of two days in this city in search of glucosed honey, even going so far as to trespass on the domain of the "exception" referred to, and thus far have failed to find a single ounce of glucosed honey.

From evidence gleaned, I candidly believe that, in years past, when our product commanded a higher price, one establishment in this city was guilty of adulteration; and from this, more than all else, have sprung the rumors of the mythical millions of adulterated honey. Furthermore, allow me to inform you that the last session of our State Assembly passed two laws bearing on the subject of adulteration—one bearing directly on honey, and the other

indirectly, in connection with the "pure food" law, in both cases making it a misdemeanor; and I can assure you that, whenever any evidence of honey adulteration is produced, the Los Angeles County Bee-keepers' Association will see that guilty parties will get their just deserts.

Los Angeles, Cal., Oct. 15.

[The first thought that came to me on reading the item with regard to the extent which California honey was said to be adulterated, in friend Dayton's article, page 729, was that it should be struck out. And then I remembered that I had seen various allusions to the same effect in agricultural papers; and I had heard it whispered around at conventions and elsewhere that California honey was so largely adulterated that it seemed to me it would be better to give the thing some intelligent consideration; that if it should prove to be only a man of straw we could easily knock it over.

I am very glad indeed to get such an explicit, and, as I regard it, satisfactory, denial, of the statement. I am glad, also, to know that there are two good laws in California, bearing on the subject of making the adulteration of honey a misdemeanor. Surely, with the help of the Los Angeles Co. Bee-keepers' Association, and in connection with the Union, we should be able to sift these things down to a pretty fine point. But here is another article from the Rambler:]

CALIFORNIA HONEY NOT ADULTERATED AND SENT EAST.

HOW THE PRODUCT IS MARKETED.

By Rambler.

In Mr. Dayton's article, on page 728, there are several statements with which California bee-keepers can not agree, and one in particular that calls for a word of protest. He uses these words: "It is estimated that one-half the honey produced in California has been adulterated with glucose and *sent east* by a few if not a *very few* wholesale firms."

I have italicized the words open to criticism. It is a bare possibility that half of our honey is adulterated before it reaches the consumer; but if it is, there is insufficient data to support the assertion, and it resolves itself into a mere guess or conjecture. But when Mr. Dayton uses the term "*sent east*," implying that the honey is adulterated to such an extent here in California, I do emphatically protest against the insinuation, and not only say with the editor in the footnote to the article, "I do not believe it," but, while I do not charge the writer with a willful desire to deceive, I can prove that it was too lightly considered.

The honey in all this region is sent east in various ways. A number of producers market their own honey, either through commission houses in the East or by direct sales. There is no suspicion of adulteration, and is none in these shipments. Next a great amount of honey is purchased by local dealers. Every locali-

ty has one or more local buyers. These buyers pay cash to the producer, and the honey is loaded upon the car at the nearest station, and shipped directly east. The scores of carloads of honey that will be shipped from this (San Bernardino) and Riverside Counties, will go directly east, virtually from the producer, and will not even pass through our large trade centers. All of the honey in Ventura and northern Los Angeles Counties is served the same.

Mr. Dayton's remark, "very few," narrows the charge down to certain wholesale firms in Los Angeles. There have been various charges well sustained against certain of these firms and their practice of adulteration; but the reader will readily see that the idea that these few firms adulterate half the honey in California is not only fallacious but ridiculous; and the writer of such a statement must have been laboring under a violent nightmare over the anxiety to get a better price for his honey.

If it were really desired, I could show by railroad statistics that but a small portion of our honey finds its way into the warehouses of the wholesale firms of Los Angeles or even San Francisco.

That our local dealers send out the pure article can be attested to by the A. I. Root Co.; for I know (if they do not) that their carload of California honey was shipped by a local dealer of Riverside.

That there is plenty of work for the Beekeepers' Union to do along this line is not disputed. I believe the present stagnation of our honey markets is, in a certain measure, due to this evil. The hush-up policy will only aggravate the evil by giving the criminal the idea that he can pursue his calling without fear of prosecution.

We have an example before us in the manufacture of oleomargarine butter. Suppose the farmer had adopted the hush-up plan as a remedy for the evil, how much pure butter do you suppose we should find in the markets? Any one can easily answer the question. But the farmers are a strong factor in this country; and when they acted as a unit against the adulteration of their product, legislators were obsequious to their will, and strong laws protect the dairy interests. The bee-keeping interests are weak beside the dairy interests, but need the strong arm of the law quite as much; and that it may be applied with thoroughness and wisdom in behalf of our beloved pursuit is the desire of the Rambler.

Bloomington, Cal., Oct. 12.

[We can testify to the fact, as Rambler says (and he ought to know, for he has traveled all over the State), that a very large portion of the California honey is sent from the producer in that State direct to the buyer in the East. We have several times bought from producers in that way ourselves. Much of the honey is marketed by the bee-keepers' associations. Of

course, the honey may be adulterated after it gets here; but we "wise men of the East" surely ought to be able to keep it pure while it is here.

Rambler's fourth paragraph is somewhat of a clincher, and I regret that it shows that Mr. Dayton, who usually writes very carefully and cautiously, was in this case very indifferent or else careless.—Ed.]

A VALUABLE POINT ON THE HIVE QUESTION.

THE IMPORTANCE OF A LARGE HIVE DURING THE BREEDING-SEASON, AND A CONTRASTED BROOD-NEST FOR THE HONEY-FLOW.

By O. O. Poppleton.

I have watched with some interest whatever has been written on the hive question; and will you allow me to call special attention to what is one of the most valuable points brought out as yet? I refer to the last part of your footnote on p. 731. As you know, I use mainly, for extracting purposes, a large single-story hive in which I can add to or take from the bees one or any number of frames at any time. The few thousands of pounds of comb honey I have taken has been mostly done by giving the bees all the combs they could use in the breeding-season; and then when giving sections I take away all combs except the 8 which contain the most brood? In my mind there is no question whatever that this method gives a larger yield of honey than if only an eight-comb hive is used, or even a ten-comb, if the ten are kept in use all the season. My experience leads me to think that more than ten frames during the breeding-season is preferable with most colonies to using only ten. If I were to rig up for comb-honey raising I would use either a sixteen-frame single-story hive or double eight-frame hives, cutting down in either case to the best eight combs when putting on sections. The possible drawback to this method is that it may tend to increase swarming; but such did not seem to be the case in my experience. It would take a careful comparison of the two methods in the same apiary to determine that point.

I think that the reason why Mr. Earl's small hives (p. 731) gave him the largest yields was due to other unnoted reasons than because of a difference in size of hives. I believe it is almost universally admitted that small hives are not so good as large ones for producing *extracted* honey—the interest in this question of small vs. large hives being confined mostly to producers of comb honey.

There are many times in this Southland when extra-large colonies in very early spring are of less value than are medium-sized ones; but Dr. Miller has no cause whatever to worry about that in his locality. The trouble there is the other way.

If Dr. Miller wishes to induce his queens to

occupy the upper stories he can usually succeed by lifting one or more frames of unsealed brood into the upper one, replacing with empty ones. This is an old and (I suppose) a well-known expedient. The first part of this article answers some of the doctor's questions on page 740.

Stuart, Fla., Oct. 14.

[I regard this article as well considered, and it is pretty hard to get around some of the facts he presents.—ED.]

LOCALITY AS BEARING ON THE HIVE QUESTION.

THE IMPORTANCE OF LARGE HIVES: WHERE LARGE HIVES GIVE THE BEST RESULTS.

By F. L. Thompson.

Mr. E. R. Root:—Mr. Getaz has hit the nail on the head, on p. 742. While you recognize locality, on p. 4 of your catalog, I don't think your last paragraph on the subject in that place is limited enough. There is such a thing as giving even the beginner too little strong meat.

What is wanted now is to construct in the minds of bee-keepers an up-to-date map of the United States, in which small-hive and large-hive localities shall emerge in splotches of very strongly contrasting colors. I don't think that "latitude" has any thing to do with it, as is sometimes stated. If alfalfa were extensively raised in Idaho and Montana, it is not probable they would be different from Colorado in suitability for large hives, unless cellar wintering were essential, which is not likely. Nor has temperature so much to do with it as is commonly supposed. The alfalfa region of Colorado has the same average yearly temperature as Southern Michigan and Northern Iowa, although, of course, other climatic conditions are different.

Small hives do well almost anywhere, it is true; but if large hives do considerably better over such large areas as the alfalfa districts, it is a serious matter, not to mention various regions in the South. Very little testimony has appeared in the bee-papers from Colorado; but in conventions, experienced bee-keepers have decided here in no uncertain tones that the large hive is better for this State.

Out of 3200 Dovetailed hives sold last season by one of the Denver supply-houses, the majority were eight-frame. In another supply-house I saw great stacks of eight-frame hives, but not a ten-frame in sight, though I suppose they had them. I noticed one beginner laying in a smoker, sections, etc., and five hives—small ones, of course. This is not as it should be. Who is to blame for it? Partly the supply-dealers, who are not bee-keepers, who infer that whatever is generally sold in the East must be the thing; partly habits of imitation; and in the case of readers of bee-journals and supply-catalogs, and partly the authors of the

sentiment so frequently expressed, that the beginner had better commence with the small hive. The beginning specialist will not remain a beginner, however. If he is in a locality where the experience of others makes it pretty certain that his maturer judgment will show advice of that kind to be a mistake, the folly of taking it or giving it is apparent.

I rather suspect that the owners of those eight-frame L. hives mentioned on page 738 in that locality of long flow are like most of our Colorado bee-keepers—beginners—and that they too depend on supply-dealers who look to the wise men of the East for their inspiration.

Mr. Hand is not quite fair on page 512. If some Colorado men grow restive under the above condition of things, it does not imply that they wish to force the large hive on all the rest of the country. Surely, if Mr. Hand feels justified in protesting against what he thinks we are attempting to do, we are justified in protesting against what we know some Easterners are doing; viz., recommending the hive of their locality to beginners in any locality.

ALFALFA; HOW IT RESEMBLES SWEET CLOVER.

Dr. Miller's Straw on alfalfa (p. 727) is about right if he is comparing alfalfa with *young* sweet clover. The only difference at that stage is, that sweet clover is of a lighter shade of green; has slightly larger leaves and stems, and a more robust appearance generally. But the mature plants are very different. Sweet clover is then twice as high, branches out much more, has a much greater prominence of stems, and is considerably longer, thinner, and has more pointed blossoms, than alfalfa. Aside from the blossoms, and except when it gets quite old, alfalfa presents the general appearance of young sweet clover.

Dr. Miller might add to another Straw on the next page, that alfalfa is mentioned in some of the Greek authors as "Persian grass." Perhaps Persia is where it originally came from. It is rather curious that Aristotle says it diminishes the flow of milk, which is just the opposite of what our dairymen think, who prize it for its milk-producing qualities when it is cut before it blossoms (alas for the bee-keeper!). Aristophanes mentions it as horse-feed, but it is not regarded here as so good for that purpose as other kinds of hay. When used to feed horses it is better when fully mature; and the first crop is better than succeeding ones, the reverse being true for cows. It is raised here so extensively only as a matter of necessity, on account of its drouth-resisting qualities. On account of its abundance it is so cheap that clover would pay better if one were sure of the second crop.

THE HONEY THAT POISONED XENOPHON'S SOLDIERS IN ANCIENT TIMES.

Speaking of classical matters, I believe, Prof. Cook denies that the honey which Xenophon's army ate was poisonous, and thinks any honey

would ausce the same effects in those not accustomed to it. This is of some interest to us, on account of the alleged poisonous qualities of yellow-jessamine and mountain-laurel honey in the South. If honey from one plant is proved to be poisonous, it is not impossible that honey from another plant could be. I have been looking the matter up, and don't see how he reaches his conclusions. Not to speak of the testimony of several modern travelers, given with some detail in Vollbrecht's *Anabasis*, Xenophon's own words are rather unmistakable. Besides the sickening effects, which any honey might produce, those who had eaten a little seemed to be heavily intoxicated; and those who had eaten much lost their senses and did not regain them until twenty-four hours after, "recovering on the third or fourth day as if from the effects of a drug." One does not become delirious from indigestion merely. The honey now produced in that region is known by a term signifying "mad honey."

Arvada, Col., Oct. 9.

[I wrote the paragraph in the catalog, recommending the eight-frame hive, to which you refer, and at that time that size of hive seemed to be accepted as the nearest right for the average bee-keeper, and for the average locality; but now it looks as if it would not be safe to make any recommendation; and we have therefore decided that, for another year, we will request bee-keepers to state what size of hive they desire. Of course, we shall send out the smallest, or eight-frame, size, when no size is specified. I am quite well satisfied, however, that, in regions where there are long honey-flows, and the flows are copious, too, that the large hives are best. I am satisfied that the eight-frame size has given remarkable results in the East; but I am not so satisfied that the results would not have been better had the ten-frame size been used instead.

It would indeed be a good idea to get out a map showing where the regions where ten-frames, or hives with that capacity, were the most used; where the eight frame has the preference; where the two sizes seem to be mixed up indiscriminately according to the fancy and taste of the bee-keeper; and I propose, if it is possible, to have one made. But to do so I shall need reports from bee-keepers all over the country, who will voluntarily let me know, on a postal, what kinds of hives are used. But they must be sure to specify what part of the State they live in.

After the map is prepared we will have it photo-engraved, and submitted to our readers, after which, revised and re-revised, if necessary, to make it correspond with existing conditions. This will settle the hive question in a more practical way than any other I know of, and will, perhaps, be a fit ending to the discussion that has been long drawn out.—Ed.]

WHAT IS A LARGE COLONY?

By J. E. Hand.

Mr. Root:—I notice on page 733 that Dr. Miller calls me up to explain what constitutes too large a colony. Why, too many bees, of course, doctor. Perhaps you will understand better

what that means after you get your queens to fill those two eight-frame brood-chambers with eggs, but yours will be too large just after the close of the honey-harvest.

The next question, why too large a colony in early spring does not do as well at harvest time as one that arrives at the proper strength for work in the sections at the beginning of harvest, is a little harder to answer; but such has been my experience. Many times I have watched with great expectations an extra-large colony in early spring, which just fairly roared with bees long before the others had made much of a show, and perhaps swarmed two or three weeks before the white-clover harvest; and in every instance I have been disappointed by seeing such colonies far outstripped in honey-storing by average colonies that arrived at the proper strength for work at the right time. I can see that location might make a great difference in this matter, as it does in almost every thing connected with the business. In my location bees were very often destitute of honey at the beginning of the white-clover harvest.

I distinctly remember the best season I ever experienced, when I had to feed my bees the 10th of June to keep them from uncapping their brood, and in two or three days they commenced work on white clover, and averaged 110 lbs. per colony.

I have had some experience with queens laying in upper stories when working for extracted honey, and they became such a nuisance that I was obliged to use queen-excluders on all such hives, or have the combs that should be filled with honey crammed with brood that cost a great many pounds of honey to produce, and which would not hatch in time to gather an ounce of honey; and at the close of the season the bees would nearly always be in the upper story, with the lower one entirely empty.

If I were going to use two eight-frame brood-chambers I should want a queen in each with a double queen-excluder between, and, at the beginning of the harvest, remove one to a new stand, and place the surplus-receptacles on the hive which remains on the old stand. This would suit my location much better.

Wakeman, O., Oct. 14.

SIZE OF HIVES.

THE STANDARD LANGSTROTH NEAREST RIGHT SIZE; WEIGHT OF HIVE NOT TO BE CONSIDERED.

By J. S. Hartzell.

It has not been made clear as to what is the better hive for the general bee-keeper. Very many want a hive similar to the cluster of a swarm. Is it not a fact that a swarm adapts itself to the cavity or receptacle, in which placed, be it of what shape it may? Now, bee-keeping friends, with all due respect for all who

have written and may write on the subject of hives (and I only hope more may be said), don't you think that father Langstroth, in adopting a size of frame, and ten frames per hive, came as near filling the wants of the general bee-keeper as it is likely or possible to do?

I notice that many find fault with the weight of the larger hives when filled; but now the season of 1895 is closed, how about stores? I presume many—yes, very many—of the bee-keepers are only wishing for weight; and if they had heavy and abundant stores, no complaint as to weight would be heard. I can truthfully say that I should prefer hiring help to handle hives heavily stored than to be able to handle the lighter weights lone-handed.

Addison, Pa., Sept. 20.

[Is it not indeed remarkable—yes, very remarkable—that Mr. Langstroth, without the aid of previous literature to guide him, should, almost alone, be able to settle these problems so nearly right every time? The mere fact that the ten-frame hive is coming to be recognized after all, as the standard; that the Langstroth hive *as a whole* has been a standard all these years—is a proof of how far-seeing Mr. Langstroth was in his early years. For example, again, bee-spaces, about which we hear so much nowadays, were first provided for in the construction of the hive by Langstroth. Thick and wide top-bars will be found in old hives after Langstroth away back in the early sixties. Honey-boards, with a provision for a bee-space on both sides, were a part of the Langstroth system. Verily, he seems to have marked out a pathway for the whole of us.—ED.]

QUEENS WORKING IN ADDED STORY.

NOT "SHARP STICKS" BUT CLUBS FOR DR. MILLER; THE EXTRA-LIFTING QUESTION, ETC.

By C. A. Hatch.

I had thought that I had said all there was for me to say on the 8 and 10 frame question; but Dr. Miller has aimed a club straight at me, and if I do not "cheep" he will think he has hit me hard or downed me entirely; and to have him think that would be too humiliating. But here, after judging from Oct. 1st GLEANINGS, all there is for the ten-framers to do to give Dr. M. good hard knocks on the hive question is to turn one of his own household against him. Go for him, Miss Emma; you will fetch him yet. He will find out, before he is 40 years older, that a queen will not climb up and down over an inch of wood and half an inch of space to lay eggs on both sides of it, as readily as she will step from one comb to another. And hit him again on the lifting-off of that top hive every time he has to examine the colony, and perhaps he will see that the extra work is all on the side of the small hive; and may be you will convince yourself that all this extra work during the honey season will compensate for the heaviness of the hive in moving time.

But, to answer Dr. M.'s question, "What kind of frames did you use when the queen would not go back and forth from top to bottom hive?" The common three-cornered top-bar, $\frac{3}{8}$ inch each way, bottom-bar $\frac{1}{2} \times \frac{3}{4}$ inch, with about $\frac{1}{2}$ inch space between them when tiered up, with but few burr-combs. It is plain that the reason your queen went back and forth so readily was that the space between, being filled with comb, it was to all intents and purposes one comb.

In the case of those obstinate bees and *very* obstinate queens that refused to lay in the top at all, are you sure the queen was at fault? To me it only shows the good hard sense of the bees themselves in refusing to fix up the combs for eggs when nature said, "There is the place for the surplus honey." Did you examine the combs to see if the bees had fixed them ready for eggs? Were they cut down to the right length, and cleaned and polished? If not, how do you know but you were killing that poor innocent queen for something she was entirely guiltless of? for you must have observed that, unless a queen has a cell all clean and polished to her liking, she will not put an egg in it. And to make sure that this is so, she examines each and every cell before depositing her egg in it.

As to that extra lifting, Dr. M., that is keeping you out of the camp of the ten-framers, there is only one time that the two extra frames make much difference, and that is when carrying into the cellar. Come right over, doctor; we will welcome you with open arms, and you will find that the ten-framers' hearts are large, like their hives. If those eight-frame hives you have on hand stand in the way, put some lath across the bottom, and use them for boxes to store vegetables in. Your assistant, Miss Wilson, has put the case quite strong indeed, and shows she is really a convert, but holds back a little for consistency's sake. Even the Roots have had to acknowledge some things they would not at the start, and we *may* convert them yet.

If all men had the candor and honesty of B. Taylor, to acknowledge a hive a failure after making it a hobby for years, we might sooner get at the truth of things; but I am afraid we are all more or less warped by our prejudices.

That idea of yours, Dr. M., to have combs filled in the fall, ready for the bee-feeding in spring, is a good one; but let the bees put it right in their own hives, and then you have got it all "solid," and no trouble about getting them to take honey from a feeder in the spring either—another argument for two more frames in the hive—see?

Send on your clubs, doctor; we will throw them back, any way.

Ithaca, Wis., Oct. 8.

[Friend Hatch was the man who started this large and small hive discussion a little over a

year ago. At that time the most of us thought he might as well keep still, as every one would be "agin him" in experience. And, indeed, we tried to club him down; but so many ten-frame users came to his rescue, and more are coming, that it looks quite probable that the single-story eight-frame capacity for brood for many localities is too small to get the best results in honey. Indeed, it begins to appear pretty forcibly that the majority of extensive bee-keepers are in favor of a brood-nest of a capacity larger than the eight-frame Langstroth of single story for nearly all localities. But here is the situation here at Medina: Is not even the ten-frame too small? and would it not be better to have two eight-frame stories, one above the other, as one brood-nest? O. O. Poppleton, who leads off the discussion in this issue, and he is one whose opinions we value much, would have 16 frames. We get brood in both our stories easy enough, and it seems others do, although our friend who won't be clubbed down does not.—Ed.]

JAKE SMITH'S LETTER.

Mr. A. Gleanings, Dear Sir:—Zed reads a good eel in your paper. One day he had been a readin, and he speaks up and says he, "I believe that man has the right of it. Here's a man on page 164 who says a big hive is warmer than a little one. Now a body wouldn't think that till he comes to explain it."

"Zed," says I, "it's pretty hard to explain how it's easier to keep a big room warm than a little one."

"Well, it's easy enough after you hear how he explains it," says Zed. Then he read from page 164 of your paper: "I believe the bees form what is known as an inside hive. By this is meant that, around the margins of brood, the bees arrange themselves in such solid lines between the combs as to prevent a circulation of air from within or without the cluster, for the purpose of keeping a high temperature there while they allow the rest of the hive to arrange its own temperature; consequently, in cold weather the walls are often coated with frost; and in southern California, where frosts seldom come, we find the walls and unoccupied combs dripping with moisture. From this it would seem that the ten-frame hive is actually warmer than the eight, as the cluster of bees and brood would be able to locate farther from the outside walls. Even if the cluster was warm enough and near enough to the walls to dispel the moisture or frost, it would require warmth to do it, and such warmth would disappear in the operation, and could not aid in brood-rearing, as where there is no frost to be dispelled." Then he read in other places: "The more frames in the outside hive, the longer beam would there be re-

quired between the outside and inside cellar walls. . . . The more dead air, the more protection." "Now," says Zed, "don't you understand how it is?"

"That's too high-larnt for me," says I; "I don't understand a word of it; but it seems to me it had ought to take more to keep a big room warm than a little one."

A few days afterward Jim Short come around, and Zed brought up about a big hive bein warmer than a little one, and read all about it in your paper. Jim said he didn't know about it."

"Why, can't you see," says Zed, "that when the bees are jam up again a wall it takes heat from them to warm that wall; but dead air will keep them warm; and 'the more dead air the more protection?'"

"You think, then," says Jim, "that it's warmer if the bees are four inches from the wall than if they're only two."

"Now you've got the idee," says Zed.

"And 8 inches would be still better than 4."

"Certain," says Zed.

"And 16 better still."

"Ye——I suppose so," says Zed.

"And if it was ten foot to the walls all around," says Jim, "then I s'pose it would git so hot the bees could hardly stay in the hive in winter."

Zed didn't say a word—jest looked.

"Zed," says Jim, "I'm afeered there's a screw loose somewhere."

By that time I begun to study over it, and, says I, "I s'pose the bees know pirty well what's warm and what's cold. When it gits too hot in a hive they git out where it's cooler; and when it freezes they huddle up together to keep warm. Now don't you s'pose the bees



would hunt out the warmest place in the hive when you hive them?"

Zed said of course they would.

"And do they always cluster right in the middle of the hive as far from the walls as they can git?"

Zed allowed they didn't.

"No," says I, "when you hive a swarm in an empty hive, the first thing it does is to cluster up as tight as it can git, right up again the walls."

"Yes," says Zed, "of course they do; but that's because it's hot weather, and they want to git where it's as cool as they can."

Then you ought to heard Jim laugh. "Zed's got the start of you," says he.

"Do you mind," says I, "that little swarm we hived under the pear-tree, and it turned nearly freezin' that night? How was it when we turned up the hive to look at it the next mornin'?"

Zed's pirty fair on an argument; I'll say that, if he is my boy; and he owned up right straight that the swarm was shrunk up to almost nothing in one corner of the hive.

Just then a knock came at the door, and a wild-eyed female individual entered with a handbill in her hand which she held aloft, and, says she, in exsighted axcents, "Is Rambler here? I'm his slighted Eugenia!" □

Then she shook the handbill, and, says she, "That's what comes of havin' foreign women so plenty. He deserted his dear Eugenia because he wanted a woman of royal blood! Nothing but a queen would do him! And to think that it's come to that, that one of them would offer herself for three dollars!"

Jim whispered to me, and, says he, "She's off in her upper story."

"May be she is," says I; "but Rambler has much to answer for."

JAKE SMITH.

variable temperature it will not be as good for the bees as would one in which the temperature could be kept as nearly at 45° as possible; yet if the temperature does not go above 50°, nor go lower than 35, it will winter bees much better than to leave them on the summer stand unprotected. If the cellar is of more variable temperature than this, the bees would be doubtless better off out of doors. To properly fix the hives for wintering in the cellar they should be carefully carried in on some morning when it is a little cooler outside than the temperature which is required for the bees to fly, and never when the hives are frozen down to the bottom-boards or to the ground, if this can possibly be helped. When the hives are thus frozen down, the jar and confusion which comes from prying them loose results in great irritation to the bees, and causes them to consume so much honey that it often leads to unsuccessful wintering afterward. After getting them to the cellar the hives should be set on a bench a foot or more off the cellar bottom, and the hives raised by some means at least two inches off the bottom-board or bench. Failing to do this the hives will not be properly ventilated, and the result will be that the bees may become uneasy from lack of proper ventilation, which will cause them to consume more stores than is necessary to their existence, thereby needlessly using up the honey, and often leading to disease and death. If it is not convenient to thus place them, the hives may be turned bottom side up if the frames are fast or box hives are used, and a light thin fabric of some cotton goods thrown over the hive; still, the first is much to be preferred. I also believe that the cellar should be dark, or that part of it in which the bees are wintered. Some claim that bees will winter as well in a light cellar as in a dark one, which may possibly be so if all of the conditions for successful wintering are present; but as such conditions are usually not all present in many (if any) cellars, it is always best to be on the safe side; hence the advice to have the cellar dark.

If the cellar is lacking in many of the qualities which go to make a good cellar for wintering bees, then it may be best not to try it at all, in which case we must try the next best plan, and one which is quite well suited to all latitudes south of 44°—that is, wintering on the summer stand packed with chaff, fine hay, or straw. While a chaff hive is the preferable thing, yet it is not supposable that all may have such hives, so we must fix the bees the best we can according to our environments. If you do not have chaff hives, go to the store and procure dry-goods boxes of a suitable size, or otherwise make them, in which the hives can be set, and leave room all around for the packing. A space of about four inches is the right amount to leave, for experience has proven



WHERE SHALL WE WINTER BEES?

Question.—I have several colonies of bees for the first time in my life, and wish to know where and how it will be best to winter them. Shall I put them in a cellar, wrap them up, or let them be as they are for winter?

Answer.—There is probably no better place to winter bees than in a good dry cellar; and if the questioner has such a cellar I would advise him to set his bees in it for wintering. While this is not absolutely necessary for safe wintering, and not as necessary in our southern as in our more northern localities, yet there will be a great saving of honey to the apiarist, as well as better chances of successful wintering, even as far south as all but the most southern tier of States. If the cellar of the questioner has a

that this is better than a larger or smaller amount. The bottom-board should be raised that distance above the bottom of the box, and, after having packed under it, it should be secured there, and so as to touch the front side of the box also, as the bees must pass over this to get outside of the box. Half an inch above the bottom-board a thinner board should be secured in the same way to both the hive and box, immediately above the entrance to the hive, so as to keep the packing-material from obstructing the passage of the bees, for this is now to become the entrance to the hive.

Having this fixed, and the hive thoroughly secured to its place, we now put in the packing, pressing it in tightly, so that as even a temperature as possible can be maintained inside of the hive, packing the material in as nearly alike on all sides as possible. When the top of the hive is reached, the honey-board, if one is used, should be removed, and two or three thicknesses of cotton cloth spread over the top to keep the packing from rattling down into the hive, and also that, in thus providing for ventilation, a direct draft shall not be allowed through the hive.

Having all fixed as above, fill in the packing to the depth of four inches all over the top of the other packing, as well as over the hive, keeping it as evenly distributed as possible, but allowing it to be more loose and open than at the sides. The box should be tall enough so as to come a few inches above the packing, so that the cover, which is now to be put on, shall not touch it. This last is very important; for where the packing touches the cover to the box it will absorb the moisture which condenses on the cover, to such an extent that all will become wet and moldy long before spring.

No matter whether it is chaff hives or boxes packed as above, there should always be a few inches space above the chaff or packing, so that the moisture arising from the bees may have a chance to pass off to the outside air with as little condensation as possible. Having your bees thus fixed, or in a good cellar, they will winter much better than if left to take their chances in unprotected hives.



LYSOL A SUCCESS AS A CURE FOR FOUL BROOD.

Report from here is poor. Basswood did great for ten days, but no honey since—not enough to keep up brood-rearing. Well, we have no foul brood now. One colony has some dead brood, killed by feeding lysol. I used a hive that had foul brood last season, and fed two feeds too close together, so that the young

larvæ got two doses, and that will fix them sure. Lysol will cure foul brood here in Michigan. I have treated 7 colonies for another party, and they are now all healthy; but it may return next season. More lysol will do the business, so will McEvoy's way of doing. Can't scare me out of another year's growth with it again.

Northville, Mich.

CHAS. BIERY.

[We are very glad to get this report of the effectiveness of lysol as a cure for foul brood. It will be remembered that, after friend Cravenhorst, editor of the *Bienenzeitung* (Germany), suggested to us this new remedy, we procured some of the drug and sent samples of it out for the cost of postage, to those who would try it. As we sent out at the time quite a number of samples, I should like to hear from those who obtained it as to how it worked.—Ed.]

ANOTHER REASON WHY THE HIVE DISCUSSION SHOULD BE CONTINUED.

By all means keep up the hive discussion. It may help other bee-keepers, as it has me, to find just where I am "at" on the hive question. I will try to write you shortly in reference to the standard cubical hive.

Mentone, Ala., Oct. 15.

C. F. PARKER.

MEMORIAL.

While the Southwestern Wisconsin Bee-keepers' Association was in session, Oct. 8, in Platteville, the sad news of the death of Rev. L. L. Langstroth was received. Therefore be it resolved:

That this society deplores the loss of father Langstroth, who died at his post of duty while preaching gospel truths.

That his life has ever been an example of study, thought, and deed.

That by his invention of the most practical movable-frame hive, 1851, and his book, 1852, "The Hive and Honey-bee," Mr. Langstroth laid the foundation of American apiculture.

That a copy of these resolutions be published in *American Bee Journal* and *GLEANINGS IN BEE CULTURE*.

N. FRANCE, Pres.

M. M. RICE, Sec'y.

VALUE OF BEES AS FERTILIZERS, AGAIN.

I would call your attention to the inclosed clip from the *Experiment Station Record*, Vol. VII., No. 1, 1895.

A. T. GOLDSBOROUGH.

Washington, D. C.

[The following is the item referred to, and simply corroborates a mountain of other evidence to the same effect:]

FRUITS. G. COOTE (*Oregon Sta. Bul.* 34, pp. 19-29, pls. 2).—This bulletin comprises notes on various varieties of orchard and small fruits grown at the station, with some general remarks on pollination and fertilization of flowers by bees and otherwise. Tabulated comparative notes are given of the date of blooming and pollen-production for 21 varieties of cherries, 28 of plums, 11 of peaches, 14 of pears, and 22 of apples, the relative abundance of pollen being also designated.

Experiments were made with peach-trees in a forcing-house to determine their power of self-fertilization. Fertilization was done by hand, a brush being used, by spraying with water when the trees

were in full bloom, and by placing a hive of bees in the house. All the fruit was matured on the tree to which the bees were allowed access, while more or less dropped at the stoning period in the case of the trees fertilized by artificial means. A tree protected from the bees, and not otherwise fertilized, set no fruit whatever.

WHAT TO DO WITH HONEY SOURED IN THE COMB.

What would you do with brood-frames filled with sour honey? It soured in the cellar last winter, and the bees died. I have a solar wax-extractor; could I extract it as it is?

Rice Lake, Wis.

LYDIA AMERMAN.

[I would put the honey, comb and all, in the solar wax-extractor. The wax, when melted, will rise to the top, when the honey can be drawn off. If it is not then sweetened by the heat, throw it away or use it for vinegar. If the combs are good and worth saving, extract the honey and heat it over the stove.—Ed.]

A CORRECTION AS TO THE AMOUNT OF HONEY SENT TO THE COLONIAL EXHIBITION IN 1886.

It is to be regretted that it is so difficult to catch up with and down an untruth, once it "gets a going." There is no doubt that Mr. W. S. Hughes, the writer of that biographical sketch of Mr. M. B. Holmes, intended to give correct figures when he said, "Ontario sent about 40 tons of honey to the Colonial and Indian Exhibition in 1886;" but, in fact, we sent only about 20 Canadian tons; but that would not make 20 British tons, by any means, which makes the untruth all the more to be regretted.

I very well remember the nice large exhibit of honey sent to that exhibition by our enterprising brother Holmes. It gives me pleasure even to this day to go over in my mind the noble manner in which Bros. Holmes and J. K. Darling, living as they do away off in the east end of the province, responded to the call for honey to send to that exhibition. All their correspondence was prompt, courteous, and business-like, and their promises carefully kept. It is a pleasure to do business with such men.

Belmont, Ont., Oct. 21.

S. T. PETTIT.

STICKY FLY-PAPER IN THE TREATMENT OF FOUL BROOD; HOW EASILY RECOGNIZED FROM THE DESCRIPTION GIVEN IN THE A B C OF BEE CULTURE.

I have been working in foul brood, and I went to the A B C for treatment. I had eight colonies badly affected, and I think the disease well named. I would say to those who have never had it, you need not guess at whether you have it or not. You can tell as soon as you see or smell it, to a certainty, from the description in the A B C. I used to think every bit of chilled brood I saw was foul brood sure, and was always looking for it as if it took fine work to detect its presence. I thought I could smell it for a week after I got it burnt. I took the best to try my hand at curing; the others, I burned (kept the hives and immersed in boiling water, as directed in the A B C).

As there is some doubt expressed in the book as to our being able to get all the bees, I will tell you how we did. We brimstoned them after night, and let the hive stay on the stand over the next day. Having the entrance corked tightly, we took a sheet of tanglefoot fly-paper and cut a hole in it over the corked entrance. This caught every straggler. After scalding the hives I painted them inside with 5 per cent dilute carbolic acid.

I started up with 5 Hoffman frames to the hive; and after the bees were put in on the foundation I let them stay confined 48 hours, then fed, and let out next day after feeding at sundown. We boiled the honey to feed them inside at night. They seem to be coming up, as the A B C says, with June prosperity, notwithstanding the comment that it doesn't work with some. I neglected to say that we used fly-paper at the entrances of those confined, and think it works finely to catch the stragglers anywhere.

Will you kindly tell me whether it would be best to burn the sections drawn out on those hives this year? I do not want to take any chances that I might avoid, of its return.

Saltsburg, Pa.

G. W. MARTIN.

[The use of sticky fly-paper is a new and excellent suggestion. If we should be so unfortunate as to have at some future time another case we shall try it. The five-per-cent dilution is not strong enough to do any good. Better boil the hives thoroughly. The sections you refer to had best be burned.—Ed.]

THE GIANT BAMBOO.

[The following verses were sent us by friend A. F. Brown, of San Mateo, Fla. He says he came across them about the time he read A. I. R.'s description of the bamboo. We do not know where they originated.—Ed.]

One night when the hills were drenched with dew,
And moonbeams lay about,
The comical cone of a young bamboo
Came cautiously creeping out.

It tossed its cup upon the ground,
Amazed at the sudden light;
And so pleased was it with the world it found
That it grew six feet that night.

It grew and it grew in the summer breeze;
It grew and it grew, until
It looked right over the camphor-trees
To the further side of the hill.

A Japanese phrase the wood-cutter used
"Fine tree!" is what we should say,
He chopped it all round, till it fell to the ground;
His oxen then hauled it away.

He made a fine tub from the lowermost round,
A pail from the following one;
A caddy for rice from the very next slice,
And his work was no more than begun.

The next were tall vases and medicine-cases,
With dippers and drink cups galore;
There were platters and bowls, and pickets and poles,
And matting to spread on the floor.

A parasol-frame and an intricate game,
And the ribs to a paper fan;
A sole to his shoe, and a toothpick or two,
He next made—this wonderful man.

A pencil, I think, and a bottle for ink,
And a stem for his miniat'ire pipe;
A ring for his hand, and a luncheon stand,
And a tray for the oranges ripe.

A rake then he made, and a small garden spade,
And a trellis to loop up his vine;
A flute which he blew, a tea-strainer too,
And a fiddle to squeak shrill and fine.

It would take me all day, if I were to say
All that wonderful man brought to view;
But a traveler I met says he's sitting there yet,
At work on that single bamboo.



Yes, the bee sings—I confess it—
Sweet as honey—heaven bless it—
Yet he'd be a sweeter singer,
Ef he didn't have no stinger.

RILEY.

A MORE full and complete description of A. I. R.'s visit to Battle Creek will be given in our next issue.

In our next issue, as explained in another column, the symposium on "Wintering" will be made up of articles from the following-named bee-keepers, so far as we have yet heard from them: H. R. Boardman, C. A. Hatch, J. E. Crane, B. Taylor, Friedman Greiner, S. T. Pettit. A number of others will also contribute, but I can not announce their names until I hear from them.

I REGRET that we have not room for all the Reports Encouraging and Discouraging, or even any of them, in fact, for a few numbers to come. Those that came during the month of August and the fore part of September were about equally divided between the two classes; but lately there seem many more of the encouraging sort. These report good fall flows which, in the majority of cases, means no feeding of sugar. Orders for shipping-cases have been coming at a good rate. "There has been a good run of buckwheat honey in the East; but there was not much to speak of from goldenrod.

In February, 1885, there was held an international bee-keepers' congress in New Orleans, on the exposition grounds. That was one of the largest and most enthusiastic gatherings of bee-keepers I ever attended, and I know of no meeting of the North American that was larger numerically than that, except the one held at Chicago during the World's Fair. Well, there is to be another bee-keepers' congress, this time at the Atlanta exposition, Dec. 4 and 5. I am informed that "present indications show that it is going to be a large representative gathering of bee-keepers from all parts of the Union." Dr. J. P. H. Brown, of Augusta, Ga., is the prime mover in the matter, and he, doubtless, will supply us with information later, giving us program and further particulars. This congress is in no way connected, as I understand, with the North American or any other association. It is simply an informal gathering of bee-keepers, the same as was witnessed at New Orleans.

COMPOUND NUMBERS FOR HIVES.

E. E. HASTY, in the *Review*, referring to the discussion on the subject of numbering hives,

thinks "a hive needs a *visible* number on it no more than a toad needs a tail, if a strict arrangement by groups is followed." He uses a compound number. The first figure indicates the group and the second the position in the group; thus, 16-9 would mean the ninth hive in the sixteenth group. I have no doubt that friend H. can carry out this plan for himself without the "visible number." But suppose he hired help, and he should direct his man, not very familiar with the arrangement, to 16-9. In the first place he would not know from which end to commence numbering; and, even if he did know, he would have to count up till he got to 16, and then count again. The plan of compound numbers is tiptop, as it helps to locate the hive; but when the expense is merely nominal I would have the visible number by all means.

In this connection I may remark that H. R. Boardman, of East Townsend, O., letters the rows and numbers the hives. For instance, tag B-3 on the hive means second row and third hive. Where hives are carried into a repository, and it is desirable to put them back in the same place in the spring, this arrangement or the compound number of Hasty's is certainly convenient.

FUTURE SYMPOSIUMS FOR GLEANINGS.

It is getting to be quite the fashion to introduce, now and then, symposiums—a number of articles on one subject—in class and especially in trade journals. This was once a prominent and admirable feature in the *Review*; but lately it seems to have been discontinued. In inaugurating something similar in our columns, and with no thought of copying after our excellent cotemporary, my idea has been not so much to focus the opinions of our best writers in one issue as to gather together ideas from bright practical men who write only occasionally. These ideas are to serve as food for thought for future issues, and for a better comparison of notes. Such has been somewhat the character of the hive discussion—pollenization of flowers by bees; crimson clover; fixed distances, and others that I will not stop to name. Single-issue symposiums are good so far as they go; but it is seldom that one set of writers in one number can come anywhere near solving a problem, or of giving us *all* the light that can be thrown upon the question. As time goes on, old accepted opinions become obsolete. It has seemed to me that the "Wintering Question," once an old chestnut, should be at least looked over; and the best light we have should be thrown upon it; i. e., to use a little modern parlance that expresses the idea better than any thing else, "see where we are at." "What! that stale old subject?" you ask. Yes, but I plan to have it so presented that it shall be fresh.

I have asked a number of our prominent and

successful bee-men to give briefly their present method of wintering, and then in the same article what they have learned in the last three or four years that has been helpful along this line. My idea is, to learn how nearly the successful ones follow the same or essentially the same methods. If these methods are generally the same it will be proof that they are nearly the correct ones; and then I am sure that the last few years have thrown light on problems that a few years ago were totally unsolved. The question will then be open for others to discuss for one or two numbers.

In our issue for Dec. 1st, or perhaps the one for the 15th, I am planning a symposium on Langstroth; his early career; his inventions, and their relative value; in short, his place in the history of bee-keeping which he, more than any other man in the world, raised to its present standard. A. I. R. and I both feel that the father of American bee-keeping has never been fully appreciated, even by the bee-men of this country. Now that he has but so recently passed from our midst, it is but fitting that a worthy tribute should be extended to his memory. I have already called upon some of the foremost bee-keepers of our land for articles calling attention to some of the features in Mr. L.'s career above pointed out; and, in addition, there will be other papers giving some interesting reminiscences showing the many-sidedness of that man whom, I know, we are all delighted to honor. These, of course, will be supplementary to the article by A. I. R., in last issue.

We shall be printing an extra-large number of copies of the journal for both these issues—even larger than what we are now putting out from the press—12,000 copies. Advertisers should not fail to make a note of this.

Later announcements will be given regarding the symposium above mentioned; and, as the year grows on, other special features that will be prominent for the year to come. Now, dear reader, even if times are hard, and even if the bees didn't pay extremely well, can you afford not to remain with us?

HOW TO MAKE SUGAR SYRUP WITHOUT HEAT OR PERCOLATION.

LAST fall I had much to say about percolating syrup by the cold process of feeding sugar and water, half and half, in percolator feeders. It will be remembered that I was very enthusiastic over the plan; for, indeed, it was a great saving in time and bother over the old way of mixing and stirring over the hot stove, to say nothing of the liability to scorch the whole batch and the mussing of wash-boilers, stoves, and utensils in general.

This year, when we began our feeding operations we practiced the percolating plan; but very shortly we discovered an improvement, and I reported the same on page 745, Oct. 1st

issue. At that time I expressed a hope that we might be able to get along without the percolation, and I then referred to the plan practiced by F. A. Salisbury—that of mixing sugar and water, in equal proportions, in an ordinary honey-extractor, and revolving the reel until all the sugar is taken up. From some preliminary tests that I had made I did not think favorably of the plan, and so reported last fall. But more of this anon.

As we did not have enough percolator feeders to go around, our Mr. Spafford, of the apiary, tried mixing, in an ordinary can or barrel, sugar and cold water, giving it an occasional stirring with a stick during the day. If he mixed the sugar and water, and stirred it well, say the first thing in the morning, and stirred it again at noon, and again at night, before leaving, he found the next morning, to his satisfaction, clear and limpid syrup of a consistency of 32 by the ordinary maple-syrup hygrometers. He made several barrels of sugar into syrup by this plan, and in every case the syrup was of first quality, as good as that made by artificial heat, away over to the factory. This I regarded as not only a good hit but a great saving in time, because the food could be prepared in the honey-house, right in the apiary; and then, too, this "made syrup" could be fed in the Miller feeders. These, for late feeding, are ahead of any thing else we know of.

I forgot to say that, later on, instead of making the proportions equal parts, he used three measures of sugar and two of water, and succeeded in getting clear syrup without granules, as when he used equal parts.

THE SALISBURY COLD PROCESS; HOW TO MAKE SUGAR SYRUP, A WHOLE BARRELFUL IN TEN MINUTES.

When Mr. Salisbury, of Syracuse, made us a visit a short time ago I told him of our plan of making syrup, that we were using with success. "But my plan," said he, "is shorter and better yet. It takes only ten minutes to make a big batch."

"But why couldn't I do it then? I tried it, and it didn't work very satisfactorily."

"Well, then you didn't try it right," he insisted. "You let me take one of your extractors to-morrow morning, and I think I can show you how to make the syrup—a whole canful—in ten minutes."

"All right," said I, "thinking that I could show him that he couldn't."

Next morning he and Mr. Spafford made one batch, taking sugar and water half and half, in ten minutes; and shortly after, another batch, one-third water and two-thirds sugar, in fifteen minutes; but, as he afterward told me, he turned the reel "good and hard." I was to witness the operation, but something called me away, and the boys didn't wait.

After dinner I went out to the apiary with

Mr. Salisbury, to look at the samples in glass jars that were placed outside in the bright light of the sun so that any undissolved granules could be seen. Sure enough, the half-and-half mixture was as clear as crystal.

"But the other jar looks cloudy," I said.

"The half-and-half jar," he explained, "looked the same way, but, as you see, is now clear. The cloudy appearance is due, not to undissolved particles of sugar, but to air-bubbles. You see, the cloudiness is more dense at the top, showing that the air-bubbles are rising. If they were granules they would be settling, and the clearing would be at the top first, instead of at the bottom.

Even while we stood there it was plainly evident that friend S. was right; for the thicker syrup was also clearing up rapidly, and, shortly after, it was indeed as clear as the other jar.

"That explains," I said, "why I condemned the plan as a failure. I saw that peculiar cloudiness of the syrup after the stirring, and concluded that the sugar was not all dissolved, when in fact it probably was; but tell me," I continued, "just how you made the syrup in ten minutes."

"In the first place we fill the extractor half full of water; and then as we revolve the reel we put in the sugar by the pailful until the can is filled, or nearly so. The object of putting in the sugar *after* the water, is in order to get the granules thoroughly dissolved while the extractor-basket is revolving. If the *sugar* is put in first it will make a sodden mass when the water is added, and require much more stirring."

"You prefer to make the syrup thin—half and half," I said.

"Yes, because I feed early, and then I am sure the bees can thicken it far better than we can."

"But," said I, "we often have to feed late, owing to the uniting of nuclei after the queens are sold in the fall."

"The syrup can be made thicker for late feeding, as we demonstrated this morning, only it may take a little longer."

IS SYRUP MADE BY THE COLD PROCESS MORE LIABLE TO GRANULATE?

"It has been said that the percolated syrup, Mr. Salisbury, is less liable to granulate. Do you think this cold-process feed will be as free from such trouble, or will it be as good as the syrup made over the stove?"

"I never have any trouble with granulation in the combs, and I have used this plan a number of years now. The fact is, when the syrup is made over the stove the heat in itself has a tendency to make the water take up more sugar than it can hold in solution when *cold*."

"That's so," said I; "and when the water is cold in the first place it will take up no more sugar than at any other time."

In corroboration of this I may say that none of the cold-process syrup we fed last fall showed at any time granules of sugar, while we have noticed in times past that syrup prepared by the aid of artificial heat often did show such granules. As Mr. S. says, the heat enabled the water to hold more sugar in solution than it could when cold.

I have thus gone carefully into the details of the conversation, as it explains *how* to make good syrup by the cold process, and how I was misled in thinking that the air-bubbles, by the extractor plan, were granules of sugar in my first tests, when they were only *air-bubbles*.

Of course, making syrup by means of mixing sugar and water together is not entirely new; but the possibility of doing it so expeditiously, and making it as clear and as good as that made by artificial heat, is new, I think. I am aware that there is a general impression that a mixture of cold water and sugar will be more liable to granulate in the combs; but after the reader has thoroughly considered the matter in the light of the paragraphs just given, he will acknowledge it must be even better—at least from a theoretical standpoint. So far as tried by Mr. Salisbury and ourselves, it is just as good in actual practice.

HOW TO USE THE ENTERPRISE MEAT-GRINDER; HOW TO COOK THE MEAT AFTER IT IS GROUND, ETC.

As we have many questions in regard to the meat diet, one of our women-folks was requested to answer in full, and here is what she has to say in regard to the matter:

We had trouble in grinding the meat when a member of our family was dieting a couple of years ago. It seemed impossible to get the meat through more than once, and the plate had to come off every few minutes and be cleaned out. But we have found a way out of the trouble. If you will screw the plate on very tight, take a hammer, and pound it down after you have screwed it as far as you can with your hand, you will have no further trouble. The meat will be forced through in a continuous stream, and you can put it through three times without taking the plate off once to clean it, and you can do it in less time than it took you to do it once.

In regard to broiling the chopped beef, you will probably have to learn somewhat by experience. Make the chopped beef into a loose cake—as loose as you can without having it fall apart in broiling, and lay it on a common wire broiler, and hold it over a gasoline or gas flame, turning it often till it is done. If you do not have access to a gasoline stove, very hot coals will do nearly as well. Have a hot plate near at hand to catch the juice which may run out when the meat is turned. If you have trouble in getting it done through in this way, just sear it over on both sides and turn it on a hot plate and set it over water until it is done. Be sure to cover it if you put it over hot water, so that it will not dry out. Baking it in the oven is not a good way, as it tends to dry out the juices of the meat and make it indigestible.



ON THE WHEEL.

After a busy day there are few things I enjoy more than sitting down at my secretary—yes, it is *my* secretary—it is a particular one where my agricultural books and papers are all together; and when it is too dark outside I can just sit down there with a nice lamp and take real solid comfort. Well, a few days ago I picked up the *Practical Farmer* for Oct. 5. I always read what Terry writes, whether it is on clover, wheat, or even cattle. Any subject that interests Terry always interests me, for I find some practical hints that are worth money in any kind of business whenever he undertakes to talk to the people. Well, just about the middle of his article I noticed he put in a headline—

BLOOD WILL TELL.

It interested me so much that I am going to copy a part of it right here.

Yes, blood will tell, no matter whether it is in stock or seed. Last spring, Wm. Henry Maule, the great seed-man, sent me two small tubers of a new early potato to test. They weighed less than half a pound, the two together. There was nothing in their appearance to indicate that they were better than any ordinary potatoes one could pick up in any farmer's cellar. I have a good many potatoes sent me to test in this way, and often find that they are no better than old varieties. We had a number on trial this year. To make the trial more complete, I got two tubers of about the same size from an old farmer's stock, and planted them by the side of the others. He said they were Early Rose. I can't say about this, but they are an early kind that he has grown a long time without any change of seed. All these potatoes were cut to one eye, and planted precisely as the rest of our field crop was planted. They were put right in the field, and not on selected ground, but on average. No manuring or fertilizing whatever was done on the land where they grew. Nor did they have any extra tillage. We dropped these pieces in drills made the same as all over the field, and then treated all the field alike till digging-time. I took a fork and threw out the hills planted with Mr. Maule's new early potato, and I never was so surprised in all my life at any results obtained in potato culture. In every hill there were great, large, beautiful potatoes, such as I have never seen since the first year the old Early Rose came around. There were practically no small ones, or medium sized ones—just enormous ones, such as you might perhaps look for under very favorable conditions in a wet season. Now, I am not exaggerating a bit. The first year I grew the Early Rose there were a good many tubers as fine and large as these. I have never seen any early potatoes on my farm since, as one, until I dug these. There were 45 pounds. They resemble the Rose in shape, color, and quality very much. They are quite early, and were ripe entirely before the rains came, so this great growth was made with little chance. The tops were not large. They were not as thrifty and promising as the Freemans, hence my great surprise when I dug them.

The two tubers obtained from a farmer's cellar gave me 15 lbs. of rather small potatoes. There were hardly any that you could call medium, and many small ones. The two lots were each given about three hills less than half a square rod to grow in. The yield per acre of Wm. Henry Maule's potatoes was over 240 bushels. The yield of the others was over 80. Here was a difference of 160 bushels per acre, due entirely and only to blood. In other words, the vigor and vitality of the new seedling enabled it, under precisely the same conditions, to grow three times as many bushels. Now don't think this is an advertisement of Wm. Henry Maule's potato. He has never written me a word about it. When I planted the tubers I thought in all probability I should never have any occasion to mention it. But there is a great lesson taught by this little ex-

periment. Thousands of farmers are using seed that has so run out that there is no profit in growing the crop. I would not be rash. I am pretty careful myself. But you will make a mistake if you don't change seed occasionally and get the benefit of new blood. In this line of new potatoes we are constantly testing, and quick to change when it will pay. We raised the Early Rose largely 10 years; but careful tests made us change to Early Beauty of Hebron, Snowflake, Monroe Seedling, etc., as these newer varieties came out. Do you know the night after I dug those 45 pounds of new potatoes I hardly slept at all? My potato blood was so stirred up I couldn't cool down.

Well, the above little story so stirred up my "potato blood" that I could hardly wait till the next morning. Do you know why? Because I determined to make Terry a visit on purpose to see that 45 lbs. of potatoes. Furthermore, I decided it was the potato I wanted for some experiments I am getting ready for in the way of growing early potatoes under glass. I could have ridden the whole distance on the wheel; but it takes almost too much time, and just now we are very busy here at the Home of the Honey-bees. I accordingly took the first train for Akron, 20 miles away. Then I asked if I could put my wheel on the electric cars.

"Not unless you pay for the wheel also."

"All right. But how much must I pay for the wheel?"

"Ten cents for yourself, and the same for the wheel as far as the power-house, where our run ends."

"All right, and many thanks. Why, if you will only carry our wheels along with us for the small sum of 10 cts. additional, we will patronize you often, and the wheel business and the electric-car business will go right on lovingly together."

These electric cars are warmed by the same subtle fluid that propels them. Under every seat in the car there is a simple coil of wire. The coil is open so the air can circulate all around. The wire is of such a size that the amount of current sent through it makes it hot; and this diffuses the most pleasant and agreeable heat you can imagine all through the car on a frosty October morning.

At the power-house the line from Silver Lake to Cleveland starts out. I went into the office and tried to make arrangements with them to carry my wheel with me, but they absolutely refused. They said I could have the wheel sent on a freight-car that runs along later. I explained that I should have to have the wheel as soon as I stepped off the car. But it was of no avail. Why will great corporations be so stupid? Is a wheelman going to patronize an electric road and then sit down and wait for his wheel to come up after him, waiting longer than to have ridden the whole distance with the wheel? The consequence was, I rode eight miles to get to Terry's, and then a visit of only fifteen or twenty minutes; for to reach home by night I must get back to the power-house at just such a time. But I saw that new early potato. They were down in a dark cellar, in a bushel basket, with a big tub turned over them so as to be sure nobody got those precious tubers for dinner, by mistake. I wanted one of those potatoes very badly. I would have given a dollar for just a little one; but I knew beforehand that friend Terry would neither sell nor give away even the smallest potato without Maule's consent. He said that Maule had not told him any thing about the potato at all; neither had he told him what to do with the product. He simply asked him to test them. They had not tried any of them for eating, for they are too valuable. I do not know what some of them might

weigh, but considerably over a pound, I should judge. And this great yield was without any particular show of tops. In fact, the tops were not as large as those of the Freemans right beside.

I was satisfied with my visit, and started back on my wheel with more enthusiasm than when I came. By pretty hard riding I managed to reach the power-house just as the conductor was calling out "all aboard." Next morning I wrote Maule a letter; but 24 hours after, considering the matter, I wrote another, begging for a few of those potatoes at some price. I told him I *must* have them at once. The first letter did not bring more than a promise that, when his new catalog was out, I could have some at catalog prices. My second one, however touched the spot, and the result is, I have actually purchased five barrels of this new potato. They are to be called Maule's Early Thoroughbred potato. The price for the coming season will certainly be a dollar a pound, or perhaps \$1.50. I paid so much for these five barrels I should hardly dare tell anybody about it.

So you see I got the coveted potato I wanted so bad. What shall I do with them? Well, a few will be cut up and started in the greenhouse at once. I am going to see if I can not have some *new* potatoes ready to plant by planting-time next spring. The rest of them are not for sale, but are to be given to subscribers to GLEANINGS. And this is the way we will do it: Every one of our readers who is now a subscriber to GLEANINGS, who will send us \$1.00 for GLEANINGS one year, not asking for any other premium, shall have one pound, postpaid by mail, of Maule's Early Thoroughbred potato. The potatoes themselves are *worth*, say, a dollar a pound, but they are not for sale at any price. If you do not want to take the trouble to get a subscriber to GLEANINGS, make some of your friends, who you think would be interested in it, a present of it for one year, and we will send you the pound of potatoes.

Perhaps you do not realize how much of a find this new potato is. It is very early—perhaps as early as anything we have. None of our other exceedingly early potatoes are good yielders. This is a tremendous yielder, and the tops are small, so it will be just the thing to grow for early potatoes under glass or under beds covered with cotton sheeting. Below is what Maule himself has to say in regard to quality:

In regard to the quality of Maule's New Early Thoroughbred potato, it is exceptionally fine; it is as good a baker as Brownell's Winner, which heretofore has been considered the best of all for this purpose; and for every other culinary purpose it is simply perfection. You can not recommend it too highly.

WM. HENRY MAULE.

Philadelphia, Pa., Oct. 19.

We have at this date, Oct. 19, received 1 lb. by mail, from Maule. One of these potatoes was cooked, together with some of the Freemans. While the Freeman is perhaps a little more dry and floury, the new potato was pronounced by all the family to be richer and sweeter than even the Freeman. Take it all together, I believe that, with all its other good qualities—earliness and wonderful productiveness—it is the crowning triumph of the present day in potato-growing.

With this fine *early* potato, and the Craig Seedling for a *late* one, we have a pretty nice "span." Don't you think so?

FLORIDA NOTES — CONCLUDED.

I have once before mentioned my visit to the branch experiment station at Fort Myers. This was instituted in order to test Florida products away down below the frost-line. The experiment station proper, however, is at Lake City,

Columbia Co. Here I met with a very cordial reception from Prof. Clute, formerly connected with the Michigan Agricultural College, at Lansing. They have a fine school here, and beautiful grounds; and quite a good deal has been done in the way of testing not only fruits and vegetables, but the various grains that can be profitably grown in the northern limits of the State of Florida. Prof. Clute was enthusiastic about the flat pea, or *Lathyrus silvestris*, which has made such a wonderful growth on their grounds at Lansing, Mich. I believe it was he who first introduced and tried on an extensive scale this plant. The scaline had also been making a growth of one year on the experiment grounds; but the frost had cut it down; but when I was there it had started out making rank shoots not unlike asparagus. These shoots were several inches in length. Quite a plantation of the flat pea was just up, and was growing enough to show the nitrogen-nodes. I had quite a pleasant visit with Prof. Rolfs, the State Chemist. The different professors showed great willingness to drop every thing and show me their work and their plans. This institution is so new in Florida that they have not as yet made a success of many of the experiments, as we have here further north, where experiment stations are an older idea. My stay was so brief that I did not have time to go about much in the country.

Around Lake City, as in other parts of Florida, we find many of those strange sink-holes that have interested me so much from time to time. Gear's Sink, near by, is filled with beautiful clear water, indicating that these artesian wells and lakes have at least some connection with this sinking-down of the ground. Naturally, Florida has not very much to offer in the way of waterfalls; but Falling Creek, in the vicinity, is certainly as handsome and picturesque as some of the falls further north. A beautiful clear pure water that characterizes almost every part of Florida is one of the pleasant things about it. In fact, I can not remember of having seen any muddy water anywhere; and, I might almost say, for that matter, no mud anywhere. Another sink-hole, called Falling Creek Sink, interested me. The ground has gone down, carrying with it trees, logs, brush, etc., making it look as if the bottom indeed had commenced to drop out of every thing. The turpentine industry flourishes to a greater or less extent all through this region. This has been described before.

A few miles out of Jacksonville, toward the west, one is astonished at seeing a considerable town of very hastily built cabins, now entirely deserted. What could it mean? My curiosity was finally satisfied by some of the passengers telling me that it was a camp started at the time the yellow fever was raging, people rushing for the country, and getting along as best they could until the epidemic had passed by. And now it makes one feel a little sad to see quite a good-sized town so still, silent, and desolate. Probably there was nothing in the location to induce people to stay, other than the fact that it was a safe distance from the contagion of the terrible epidemic a few years ago.

During the middle of March I started back for my northern home. There are many pleasant things about Florida; but I confess that, as I got on further north, it seemed exceedingly refreshing to see *large areas* of cultivated fields. In Florida, farming and gardening of all sorts is mostly done in the favorable places here and there. The greater part of almost every locality is still wild and uncared-for.

Some years ago an old song was quite popular, called "The Girl I Left behind Me." I be-

lieve it met with more favor with the young or middle-aged; and it might seem out of place for a man of my age to be letting his thoughts run a good deal in the direction of "the girl I left behind me." Yes, every mile I passed reminded me that I was so much nearer, not only the girl I left behind me, but the other girls and boys flocking around her, to say nothing of the grandchildren; and my heart overflowed at the thought of meeting them all again after an absence of two months. I fell to musing a good deal, and I don't think I was as talkative as usual; but in coming through Georgia I overheard some of the young farmers talking about planting for watermelons. Said I:

"Why, do you dare plant watermelons as early as this, especially when you are having such severe frosts?"

"Why, stranger, some of us have found that it pays to plant very early. If the weather should swing around favorable, and these early-planted seeds grow, we are that much ahead. But we do not place very much dependence on this very early planting, however. Most of the large melon-growers commence very early, and then put some more seeds in the same hill, say every week, for several weeks. If the first and even second planting is killed, then the third will probably come on all right. The seed costs but little; and at this season of the year, when we have not very much to do, the time costs but little, as the hills are a good way apart; and in this way we make a sure thing of reaping the advantage of an extra-early spring if we should have one."

Now, friends, is there not a big idea here?

As I go over that pleasant visit of two months, and think of the friends I found there, I feel a great longing to go over the same ground once more. There were several points that I did not explore to my full satisfaction, because of poor health. Providence permitting, I may at some future time give you some further glimpses of that land of flowers and sunshine. Let me confess to you that, when I kneel down at night, after the cares of the day are over, I can ask God's blessing on the friends away down in Florida, with a better understanding of the matter than I ever had before.

OUR HOMES.

Jesus then cometh, and taketh bread, and giveth them, and fish likewise.—JOHN 21: 13.

And they gave him a piece of a broiled fish, and of a honey-comb. And he took it, and did eat before them.—LUKE 24: 42, 43.

I have been teaching the "meat cure" pretty vehemently for some time back, dear friends; and after Ernest backed me up on it as he did, I confess I felt somewhat anxious. Suppose I am making a mistake. Suppose the good friends who have been cured, together with myself, have unconsciously got into that state of mind, like the Electropoise patients, and that I am really doing the thing I have so strongly condemned, of *imagining* a good deal. It would indeed be a serious matter. I have prayed earnestly over it. For four years of my early life I was a vegetarian. I have by no means forgotten the arguments I used then. I often think of them; and I have prayed that God would open the way to discover if some *vegetable* product might not be found that would do all lean meat does, and thus avoid, at least in part, the taking of animal life.

After a slight attack of my malarial chills last summer I said to Mrs. Root, "If there is a

doctor on earth who can get me out of these troubles I would willingly give him \$1000;" and I *prayed* over it—not for my sake alone—of course not—but for the sake of suffering humanity whom I try to teach "doctoring without medicine." God has answered that prayer, or, at least, it seems so; and it didn't cost \$1000 either. Of late I have been pleading with the great Father again. I have asked him if it were not possible that we might enjoy the fruits and grains, so luscious and plentiful, at least in moderation, while we secured health.

Little by little as I prayed, my mind began to turn toward the great sanitarium of Battle Creek, Mich.—toward the peculiar people who live there, and who not only live on vegetable diet, but who persist in having their Sunday on Saturday. May be the idea was suggested somewhat by the fact that we had received an order from them for a carload of stuff for boxes to contain their "health crackers," etc. I said again to Mrs. Root, "Dear wife, I would give another \$1000 to know how to keep well, and to teach others, if it could be done, and still allow them to have bread and butter, peaches, baked apples, etc."

As Battle Creek stands at the head in this, I felt it might really be a duty to visit there—a duty I owed to the readers of GLEANINGS, to pay them a visit, that I might not lead them into error. If I am to teach "doctoring without medicine," *surely* I ought to see both sides of every phase of the matter.

At this crisis a letter came that almost seemed to have the finger of Providence in it.

Dear Friend Root:—I have wanted to have you come here and see how our institution is run, ever since I have been here; but I felt as if I was a cracker from the Flatwoods, that I did not care to say too much about it; but in some way your work was mentioned the other day before some of our managers here, and that brought up the subject of A. I. Root. Of course, we are interested in any thing that will forward educational work, and lead to better living and happier homes and happier people. The management instructed me to say to you that, if you would come here and visit us, we would furnish the transportation, and consider you our guest while here, and I should be pleased to have you come and see a business that is conducted without a view to money-making, but whose entire profits are to be used either in the betterment of the plant or in charity. We have a family now of about 1200 people, patients, guests, and helpers, and I think it would do you good to come and see some of our meetings. IRVING KECK.

Battle Creek, Mich., Oct. 8, 1895.

I replied at once, accepting with thanks the kind invitation, of course declining to let them pay any of my expenses, for I always want the privilege of speaking through GLEANINGS without bias, unprejudiced by fear or favor. On the 22d of October, as I stepped from the train I was glad to see the friendly face that greeted me so kindly last winter at Bowling Green, Fla. Little did friend K. or myself expect, when we parted away down at Bartow, Fla., to meet so soon, and under such changed circumstances. But I must hasten. At the Battle Creek Sanitarium it is the custom, once a week, for patients and others who may wish to attend, to be instructed by Dr. Kellogg in regard to health questions. Questions are sent up by the audience, and Dr. K. answers. It was my good fortune to be present on just the very evening of one these health-lectures.

Of course, I drank in every word, and I did it with almost as much intense interest as I pursued the subject of bee culture years ago. I am going to try to report the teachings of the evening pretty fully, as I am sure they are of interest and value to all; and may God give me grace to lay aside all my own prejudices (if

I have any), that I may fairly and candidly consider the whole matter. The first question was in regard to the cocoanut as an article for food. As the answer does not particularly concern us just now, we pass it by. The next was:

"What will the world use as a substitute for leather if we stop using animals for food?"

I at once surmised that at least *most* present took it for granted that the teacher was opposed in toto to the taking of life in order to furnish food to humanity. The answer was given quite at length, and in it Dr. K. in strong terms advocated his belief. As a surgeon and physician, perhaps Dr. Kellogg has few superiors in the world, and very likely he is ahead of the whole world in devising means for preparing the products of the field for healthful and delicious articles of diet; but I soon decided in my own mind, that, like some other great men, he has an offhand and sometimes even reckless way of making statements. He closed his answer by saying we could dispense with leather very easily, and that common paper, even the slip with the question on, that he held in his hand, could be made stronger and more serviceable than leather by simply immersing it in acids, sulphuric and nitric. I think he said Germany was even now making shoes of paper, much superior to leather. Now, the last may be true; but the former I am sure is a mistake, or a great exaggeration at least.

The next question was in regard to a remedy for sour stomach.

The doctor said there were two kinds—one the result of fermentation of the food, the other a surplus of gastric juice. I was a little surprised to hear him at the outset state that the Salisbury diet of lean meat was one method of cure; for pure lean beef, as it contains neither starch nor sugar, could not take on fermentation. At one period, years ago, he himself used the treatment largely—perhaps as many as a thousand patients in all, his own wife being one among the number;* but of late years he had abandoned it. He gave several of the reasons that induced him to give up the treatment. First, a sour stomach never kills anybody. I was surprised at this declaration. If this is true, diseases which we have most of us supposed to result from sour stomach *do* kill, and I confess I hardly see how a patient is going to build up very fast with fermenting substances filling the stomach and bowels. Secondly, an exclusively lean-meat diet, long continued, renders the patient unable to eat and digest anything else. This has been far from my experience and observation. Finally he said a meat-diet makes people "ferocious." This does not accord at all with my last Home Paper. The lady who superintends the juvenile department of our Medina schools has become the very reverse of "ferocious" under the meat diet. For the first few weeks, I grant, the patient feels weak and irritable; but with good digestion that comes in time, and *good blood*, come patience, gentleness, and all the Christian graces.

He said, further, if it were not for the heavy doses of hot water prescribed to rinse off the poison, such quantities of lean meat would prove fatal to the patient. It happens, however, that I was a Salisbury patient on clean pure meat over 20 years ago, before the advantages

of hot water had been discovered. I then drank water as I pleased—drank it cold or not at all, and turned out to be a pretty "tough and lively corpse" at the end of 18 weeks. At that time I was told to eat what I pleased, but to be careful about getting back into the old rut again.

It seems a little sad that two great men, both benefactors to the human race, should disagree in this way.

In regard to the excessive use of sugar, they agree exactly. The same may be said in regard to fats and greasy food; and in the great dining-hall for the helpers I found one table where they had discarded cabbage, turnips, potatoes, etc., as being unwholesome and indigestible. You see in this they agree with Salisbury and Lewis exactly. They also agree in regard to the value of whole-wheat flour, the importance of cooking rice and other grains a long while, say several hours, for the use of those with weak digestion, etc.; but more of this anon.

The last question of the evening was in regard to the use of honey for food. Our readers will recall some of the severe strictures from Dr. Kellogg, that went the rounds of the papers some years ago in regard to the matter of honey as food. Well, the teacher frankly admitted he had changed his mind in regard to honey. Some recent experiments with diabetic patients has revealed the fact that, where a liver is so much diseased that it refuses to eliminate pure cane sugar, it will still fulfill its office on honey—that is, where *sugar* would be almost fatal to a diabetic patient, he can eat good honey almost with impunity. You may recall the fact that I have written of a similar experience of my own, in regard to the use of honey. Will our readers having impaired digestion please try dispensing with sugar, and use good honey instead? If your honey is not first-class, make it so by *sterilizing*, or, in other words, heating, not enough to injure it, but so as to kill even imperceptible fermentation, and make it wholesome.

On my first arrival I inquired about hot water.

"Oh, yes! here it is," said friend Keck, "as hot as you want it, and *distilled water* at that;" and I found most beautiful drinking-fountains, right in the way of convenient access, dispensing pure water, either hot or cold, at any time of day or any season. I can't tell you in this issue all this great institution is doing for the health of humanity; but I am going to tell you of friend Keck's special department. He superintends the factory where the health foods are made. These are almost all the work of Dr. Kellogg's untiring and active zeal in devising means to make sick people well.

Some time ago I asked Dr. Lewis about their gluten biscuit, and he said they would be an excellent thing for patients to take after they are able to take some vegetable food with their meals. Friend Keck gave me a beautiful room after I had been through the cracker-factory, and, after my usual nap, I was served in my room with about the nicest steak I ever found anywhere. As I am now allowed a slice of graham bread with my meat I decided to try a dish of gluten mush instead. Pure gluten is a vegetable food containing neither starch nor sugar; but as I am allowed a little graham bread I chose the 40-per-cent gluten meal. Now, I have long imagined there might be a food product in the world that would be rich and nourishing, easily digestible, and something I could take safely with my meat. As I looked at the gluten mush, it seemed as if it were going to "fill the long-felt want." I tast-

* Permit me here to call attention to a common and, it would seem, a wide-spread fallacy. Neither Dr. Lewis nor Dr. Salisbury has ever prescribed or recommended raw beef; and yet even Dr. Kellogg more than once uses the expression, "the Salisbury raw-beef diet," or something to that effect. It is true, he once partly corrected it. Now, if he in his treatment gave his patients raw beef, he certainly was not following Salisbury.

ed it. I turned with an exclamation of surprise:

"Why, friend K., this is the most delicious food. I verily do believe, that has ever passed my lips."

I knew, almost without trying, that it would digest perfectly, and it did. In the process of manufacture it is cooked for hours, again and again; and, therefore, when put up ready for market, the addition of a little boiling water makes a nice cooked food almost instantly. The gluten biscuit I found equally palatable, but it is more trouble to masticate them. Gluten may be called the "beefsteak" of the wheat; and when cooking it smells very much like savory meat.

I had quite a talk with Dr. Kellogg in his private office. While he did not say in so many words that gluten foods might entirely take the place of lean meat, he implied that they now succeeded in treating all diseases with a vegetable diet. Be it said to their credit, very few drugs or medicines are used at all. The whole great institution, employing almost every known art and appliance for the cure of disease, come the nearest of any thing I ever saw or heard of to a system of really—"doctoring without medicine."

WHEN DOCTORS DISAGREE. WHO SHALL DECIDE?

Dear friends, there is not space in GLEANINGS to discuss the matter of a mixed diet, or one purely vegetable; for great books have already been written on both sides of the subject. May I simply call attention to the fact expressed in the text at the head of this talk? Once or twice our Lord and Savior Jesus Christ saw fit to provide food for his followers. He fed the multitudes, as you are aware, both with loaves and fishes—very likely because that was the common every-day diet of the times. Once more, he at one time provided a little banquet on the shores of the lake for the chosen few. He had first helped them to catch the fish, then he provided for the tired and hungry laborers a little meal, and it was composed as before of bread and fish, both together. At another time, when he was trying to convince them that he was not a spirit, but really flesh and blood, he asked them for food. They brought him some fish and honey, of which he partook. One of the great objections made to a diet of animal food is that it necessitates the taking of animal life; but the Saviour actually helped, by miraculous means, that his disciples might gather in that great draft of fishes. He at least evidently did not consider it sinful to take life in order to provide them with their daily food. Shall we not drop the subject here, letting each one decide for himself where duty lies? and I should say, shall we not thank God for every little bit of progress that is being made in either vegetable or animal diet. In the prevention and cure of disease—especially while this sort of cure was brought about by "doctoring without medicine"?



OUR CROP OF CRAIG SEEDLING POTATOES FOR 1895.

The ground was occupied by potatoes last year; and had it been any other variety than the Craig we should have been afraid of the scab. Let me say here that the crop is mostly

dug and harvested, with scarcely a trace of scab in the whole lot. The potatoes were planted May 10, on something over an acre of ground. As there were different patches here and there, vacated by other crops, it is hard to get at the whole area exactly. The largest piece, however, was, as nearly as we can measure it, $\frac{1}{2}$ of an acre. In consequence of a frosty spring, or some other reason, there was not a full stand. Perhaps the seed was slightly frosted, as it was shipped pretty early in the spring. We cut the potatoes to one eye—mostly large potatoes. The ground was worked up fine, with appropriate harrows before plowing, then plowed and fined up again, making a mellow seed-bed nine or ten inches deep. The ground was in good order, and they came up quite promptly—that is, what came up. So many failed, as I have told you, that, fearing the ground would not be all occupied, I planted Burpee's bush lima beans where hills were missing. I did very foolishly, however, in that; for, before digging-time, the ground was so covered with the Craig potatoes that the beans were literally choked out, and they really amounted to about as much as so many weeds. As the ground had no manure, about the time the tops so nearly covered the ground that it would have been impossible to cultivate much further we mulched all the spaces between the rows with coarse stable manure; and this, together with the great mass of tops, held the moisture so well that, after the first heavy rain, it kept at least *damp* during the whole dry season down under the mulch. About the first of October the greater part of the vines, when stretched up to their full length, came up to my chin—some of them as high as my head. The mass of foliage was tremendous; and so were the potatoes tremendous. While picking them up we put some of them into a bushel basket, for photographing. Forty potatoes made a heaping bushel; and from the whole $\frac{1}{2}$ of an acre we gathered a good 250 bushels. This would be at the rate of 400 bushels per acre, and that, too, with so many missing hills that we should have had quite a crop of lima beans if the rank growth of potatoes had not actually crowded them to death before the beans were quite matured. We got some beans on the outside rows—that is about all. The potatoes have now been tested through two of our most trying dry seasons, and they fully sustain their reputation for standing drouth, scab, bugs, and blight, better than any other potato I know of. In fact, it has never shown a particle of blight. By mistake in planting, one row was left after the seed was all gone, and this furrow was pretty well down through the middle of the patch. A new potato that we wished to test was put in here—in fact, several new kinds were put in, right adjoining the Craigs. One after another showed blight more or less before the season was over, and this one long row was all black and dead when not a leaf of the Craig foliage on either side was affected at all. The Craig is in *shape* much like the Rural New-Yorker, and is in every way fully as desirable. We think it of a finer quality as a table potato, and a very much stronger grower, both in foliage and yield.

CRAIG POTATOES AT THE OHIO EXPERIMENT STATION, ETC.

Friend Root:—I was very much interested in your account of your visit to Fenn's, Terry's, and Chamberlain's, in the Oct. 1 GLEANINGS. I thought you would be interested in hearing how the Craig Seedling behaved at the station, and your account brought it to my mind.

I can say that we had no variety out of over

one hundred kinds but showed signs of blight by the middle of August; and by Sept. 1st all were dead or practically so. The Craig held out as long as any kind, but had to give up long before any frost. We had an acre or so of different kinds planted about the first of July, and they went before the frost came. Even a few planted the 26th of July did not wait for the frost. Now, just why the blight should be so severe with us here in Wayne Co., and twenty miles north be almost free from it during the latter part of the season, is something I can not explain. The two seasons before this potatoes did extraordinarily well during the latter part of the season.

I undertook quite an experiment in the late planting of potatoes this year; and although it has turned out just as I expected, there have been some facts learned that I think of value. One is, that potatoes that grow until the frost kills them are of more value for seed than those killed by the blight. We found that such seed potatoes throw up a few vigorous stalks, while those that were blighted would have many small slender stalks. The consequence of this is, that the potato from the late-planted seed would give a much larger per cent of large potatoes than would the others. I think I am safe in saying that your Craig Seedlings, that have grown through the summer without blight, are worth much more for seed than ours which have blighted, although we have some very fine Craigs notwithstanding the blight.

Some varieties behaved differently from others in this respect. If you can spare any of the kind that grew until frost came we should be glad to get them, so as to carry on this experiment another year.

I hope you will publish the exact yield, and the amount of ground occupied by that crop of Craig potatoes.

When I was at the Medina fair I had some specimens of the green and yellow soja beans. Several farmers were quite interested in it, and asked where they could get the seed. I told them that perhaps the A. I. Root Co. would keep it in stock; if not, they can get it of T. C. Wood & Co., seedsmen, Richmond, Va.

I believe this bean is a decidedly better forage-plant than many that have been introduced with a great deal of advertising. On the station ground this year one ton of green feed was cut from a tenth of an acre. E. C. GREEN.

Wooster, O., Oct. 7.

[Many thanks, friend G. There was no blight in our Craigs at all. They stood right up till the frost, just as you saw them. So our seed will be entirely from potatoes free from blight. Come to measure the ground with a tape-line, there was not nearly two acres all together. The largest piece, measured accurately, showed $\frac{2}{3}$ of an acre, and from this we got 250 bushels, at the rate of an even 400 bushels per acre, as I have told elsewhere. I shall be glad indeed to furnish the soja beans. If there is more than one variety, tell us exactly the kind that gave you at the rate of ten tons of feed per acre.]

My answer to your request to communicate results about the Craig potato is as follows:

I procured of you last spring $\frac{1}{2}$ peck of seed. I cut them into single eyes, and planted on the side of other potatoes. They took a single row of 175 feet. Yesterday I dug them. There was a little more than three bushels; weighed from 19 ounces down; very few small ones; free from blotches and such things. They are the best potatoes I have. I shall plant all I have next year. S. W. SALISBURY.

Independence, Mo., Sept. 30.

I tried thy potato called the Craig; and from thy pound I raised nearly one bushel. The season here was the worst known for years. The blast struck very early; some crops were ruined. The Craig grew very profusely, very large vines; resisted blight the best of any I noticed. In fact, they were green when all other varieties were dead. JACOB ALMY.

South Portsmouth, R. I.

Those Craig potatoes that we purchased of you last spring are very nice. You say the vines stay green till frost comes; but that is not the case with ours. They are all dried up now. But I guess the reason of that is we planted them when we did our early potatoes. We planted half a peck of small Craig potatoes; and when we came to dig them this fall we got four bushels and a half of nice big potatoes; but they were in rich ground. We like them on account of size and good flavor.

We have now 115 colonies of bees. I have ten of my own—all but one in your Dovetailed hive, eight frames.

We have a pretty fair crop of honey this year, but it is all from fall flowers.

Savanna, Ill., Sept. 24. CHAS. D. HANDEL.

The one pound of Craig potatoes I purchased of you yielded $\frac{1}{2}$ bushel, but quite a lot of small ones. They had a very poor chance, a pear-tree shading part of them.

Tidal, Pa., Oct. 19. SAM'L HEATH.

In the August 15th number of GLEANINGS was something for which I desire to thank you, under the heading of "Sub-irrigation vs. Tomatoto." I have been trying to introduce a system exactly the same, for the house we have lived in here for a number of years past, but without avail, as the owners are not ready to listen to any thing different from what the plumber has to offer them. They are very well satisfied to run waste water from the sink to a well situated some distance down in the garden, away past every thing growing in the garden—no opportunity for watering unless we pump cold water from the well direct.

East Downingtown, Pa. FRANK T. HOOPE.



PRICE OF GLASS, AGAIN.

When we made the announcement in last issue, of a large advance in price of window glass, we were not cognizant of the fact that the manufacturers' list price had been changed recently. Since we have the new list to which present discounts apply we find present prices not nearly so high as indicated, though quite a little higher than last spring's prices. In view of this change of base we revise again our price of glass to the following:

Small sizes cut to order will be \$2.50 per box of 50 feet. Strips in stock as follows:

	Price of		Wgt. of
	10	100	100
3x17 $\frac{1}{2}$ for 24 single-tier and 48-lb. cases.....	25	2.00	50 lbs.
3x13 $\frac{1}{2}$ for 12 and 24 lb. 3-row cases.....	20	1.80	45 "
2x9 for 12 lb. 2-row.....	8	.60	20 "

CARLOAD OF ALFALFA HONEY.

There is a carload of alfalfa honey on the way to us from Reno, Nev. It is chiefly extracted, of good quality. There is some comb; but as we have orders already waiting for several tons of choice comb honey, we are likely to close this out soon.

after the car arrives. We offer the extracted at the same price we have been selling California white-sage and Michigan willow herb, or clover and bass-wood honey. We can furnish any of these in 60-lb. cans, two in a case, at 8c per lb.; two cases or over, 7½c. Write for price on large quantities. Offers of choice comb honey solicited.

HIGHER PRICES FOR WAX.

A brisk foreign demand for wax has stiffened up the price about 2 cts. a pound in the New York market. Until further notice we offer 26 cts. cash, 28 cts. in trade, for average wax delivered here. Selling price in small lots will be 32 cts. per lb. for market wax; 35 cts. for refined. Retail price of comb foundation will be 2 cts. per lb. below the printed table in our catalog. We have for some time been selling at 5 cts. below; but present prices of wax will not warrant further sales at that rate.

THE BIGGLE POULTRY-BOOK.

We have not had time to read it through yet, but we notice this one is not a bit behind the Biggle strawberry-book and the Biggle horse-book, in its wonderful half-tone pictures, to say nothing of the colored plates that are all through it. There is a sort of vein of pleasantry running through the Biggle-book pictures that is quite attractive, and the style of narration has this same vein of comicality. We take it for granted that the book is fully up to the times, because books of this kind, sent out by the *Farm Journal*, are usually so. The price is 50 cts. It contains 16 colored plates, 42 handsome engravings, and 61 others illustrating chicken-houses, nests, drinking-vessels, etc. It makes me think of the time when I walked eight miles to a bookstore in order to purchase a book on poultry. It took me a good deal longer to get home than it did to get to the bookstore, because I sat down too often to look at the pictures and to read the wonderful things in regard to my then new hobby; and that book gave me more pleasure, month after month and year after year, than I can well describe, and it gave me also some clean hard cash—the first money I ever earned in any rural industry. I verily believe the Biggle poultry-book is worth 50 cts. just to look at the pictures, even if you do not have time to read it all. You can order it at this office if you prefer. We will send it with GLEANINGS, if you ask for no other premium, for \$1.40.

HOW TO GET WELL AND KEEP WELL.

The above is the title of a book by Mrs. Elma Stuart, of "Merrie England." Permit me to say that, for many years past, I have been purchasing almost every new book as it came out, treating on the subject of health and diet. I do not mean that I have been studying all the medical works and doctor books, but those written in plain English for common people. Well, I have been a good deal disappointed to see that, almost without exception, they advocated vegetable diet, or mainly so. This book by Mrs. Stuart presents a most refreshing and cheerful contrast to the general run. She is a disciple of Salisbury, and I might say, an ardent disciple; but even the word "ardent" does not express the zeal and happy enthusiasm and pleasantry with which she tells of her trials in seeking health. She had money—at least she did in the beginning—to employ the most expensive doctors, and to go to the celebrated health-resorts; but, like the woman in the scripture, she had "suffered many things of many physicians, and had spent all that she had, and was nothing better, but rather grew worse." After gaining strength and robust health by the Salisbury treatment she took up—not medicine (because her whole system is nearer "doctoring without medicine" than any thing else I ever heard of), but she soon commenced treating others, and she has quite a long string of grateful patients to back up her testimony; and in the introduction to the book is a letter by his grace the Duke of Argyll. We find the author's picture in the front of the book, with her own autograph under it, signed, "Yours always in hot water." Her testimony is so much like my own that one might imagine she copied some of it after me were it not for the fact that the first edition of the book was put out in 1889; and in 1891 it had got as far as its fifth edition. The full particulars of the treatment are given so plainly, and in such every-day language, that it seems to me one could hardly make a mistake. In fact, I would recommend this book to all our in-

quiring friends who want to know all about the plan of treatment. And the book is so readable that I think the average person would be likely to read it all through, even though he were entirely well, and not ailing in any respect. The opening text on the title-page is, "If the prophet had bid thee do some great thing, wouldst thou not have done it? how much better, then, when he saith to thee, Wash and be clean?" From beginning to end it is a most vehement injunction to "wash and be clean," in every sense of the word.

The price of the book, postpaid, is \$1.50, and it may be had at this office; or we will club it with GLEANINGS, and furnish the two for \$2.25; or we will mail it to anybody who is already taking GLEANINGS, who will send us \$1.25.

FREE SAMPLES OF THE PREPARED HEALTH FOODS MANUFACTURED AT BATTLE CREEK, MICH., ETC.

I am happy to tell our readers that we are to be furnished with a large box of small sample packages, to be given away to those who order goods of us by freight or express. All you have to do is to say, when you make your order, "Put in some of the free samples of the prepared health foods." Each package contains full and complete directions for cooking. After you have tried them, and would like to purchase these articles in small quantities by the pound, we are going to have it arranged so we shall keep in stock the following staple articles, which will be furnished by us at the same prices at which they are sold in Battle Creek. The following is a list of the prices of the things we propose to keep in stock:

Sanitarium graham crackers, 10 cts. per lb.; wheat crackers, 10 cts.; carbon crackers, 15 cts. These latter are for constipation, and for purifying the stomach and bowels. They are made of carbonized wheat, or wheat partially burned to charcoal. Granola, 20 cts. per lb. This is manufactured from a variety of grains, subjected to continued heat and other processes whereby the starch is partially digested, and prepared for immediate assimilation. Gluten meal, 40 per cent pure gluten, 40 cts. per lb. This is what I have described elsewhere in this issue, and found so delicious when made into a mush. Granose, 20 cts. per lb. This is one of their latest and most luscious foods. It is prepared from wheat. It may be used in soups, with milk or cream, or in numberless combinations with fruit and eggs. It is palatable, crisp, delicious, and a valuable food remedy for constipation. Caramel coffee, 15 cts. per lb. This is a sort of coffee that is simply nutritious and not stimulating. You can give it to the children, or drink it yourself. Wheat-germ grits, 2-lb. package, 10 cts. Whole-wheat wafers, 20 cts. per lb. These are crisp, delicious, toothsome wafers made of whole-wheat flour, shortened with cream. Not a particle of butter, lard, baking-powder, yeast, or soda, is used in making these wafers, or in any of the crackers or biscuits. The first and main idea in their manufacture is health; next, prices as low as may be consistent with quality.

Last, but not least, we have fragments or broken crackers in bulk of all the kinds of crackers that they make, at a uniform price of 8 cts. per lb. These crackers are just as good and just as clean and fresh as any other; but they are not considered quite as nice to put up in packages, therefore they sell them at a low price as above.

Besides all the above, we have the small samples of their health food, put up in little packages, with directions for cooking, to be given away free. If wanted by mail you will have to send 10 cts. for postage; but if you mention them when ordering other goods of us, say by freight or express, we will put in some samples free of expense.

Now, they manufacture ever so many other kinds of biscuit, crackers, etc., as well as prepared foods, and you can get a nice catalog of all by simply making application to the Sanitarium Health Food Co., Battle Creek, Mich.

One special thing to recommend these foods is, that they can be so quickly prepared. The cooking is all done by steam, or by great coke fires, at the factory; and it is done on so large a scale that the cost is comparatively nothing. When you want to prepare them for the table, simply pour on a little boiling water, stir it up, and you have a hot dish of most luscious pudding, mush, toast, or whatever else it may be. Where a woman does her own housework (as is the case in our home), we should

try to make it a great study to save mamma time and steps; and with something provided so cheap, a healthful, nourishing, and delicious food can be smoking hot for the table in from three to five minutes, which is certainly a great desideratum.

COLD-FRAME OR HOT-BED SASH.

As we are now approaching the season for using sashes for protection from the frost, we call attention again to the new-style light hot-bed sash we have been using for the past two or three years. At first it was thought that such very light sash would not stand the weather and handling; but in our own gardens our boys found them a very great convenience indeed on account of their lightness. It is true, they are a little more apt to be blown off by the wind; but when placed on a nice well-fitting bed, so as to cover the bed entire, the wind rarely moves them. When used for constructing small cheap greenhouses they should be fastened on with appropriate hooks, or be held down with screws. There is a special advantage in using these for greenhouses for raising vegetables, because the movable sashes may be kept piled up, stored away out of the way until they begin to be needed in the fall; and in the same manner they may be moved in the spring, and stored away, thus giving the plants the benefit of the sun and rain as soon as the weather will permit. For all hardy or half-hardy stuff this is a great convenience.

The sash are of the regular size, 3 ft. 4 inches by 6 ft., for four rows of glass 8 inches wide. If any prefer larger glass we will furnish sash for 3 rows of 11-inch glass at same price. These sash are halved together at the corners, instead of being mortised and tenoned in the usual way. They have the advantage that they may be shipped knocked down at a low rate of freight, and they can be put together by anybody. If done securely they are just as strong as the regular sash. They are 1½ in. thick, outside bars about 3 inches wide, and inside ones about 1½. The bars are grooved to slip the glass in place. If a light of glass is broken, move them up close and slide another in from the bottom end. If any prefer the bars rabbeted to set glass in putty, we will make them so on request. In putting the sash together the best job is done with screws; but nails may be used, and are less expensive.

Price of one sash, in the flat, for sample, without glass or screws, 65 cts.; 5 in the flat, 60 cts. each; 10 in the flat, 55 cts. each. If you want screws to put them together, add 5 cts. for each sash. The holes are all bored, so you know just where the screws are to go. Glass 8x10, just right for the above, \$2.00 per box of 90 lights; 5 boxes, \$1.90 per box; 10 boxes, \$1.80 per box; less than a box, at 2½ cts. per light.

Sash put up, no glass or paint, 15 cts. each extra; 10 cts. each extra for each coat of paint, and 80 cts. each extra for glass set in place, making the sash put up, painted 2 coats, and filled with glass, at \$1.75 each in lots of 5. The risk and freight charges are so much more shipped put up with glass that we do not recommend you to order this way, and we can not well pack less than 5 safely.

We would not advise shipping a less number than five; but if you take our advice you will have all your glass sash shipped in the flat. In this case they go as fourth-class freight; whereas, all complete they will have to go as first-class, and some roads rate them as double first-class.

JERSEY WAKEFIELD CABBAGE SEED; H. A. MARCH'S STOCK SEED.

We are on hand again with another extra-fine lot of this seed now known so well. Cheap, 20 cents; pound, \$2.50. Remember this is as cheap as, and in many cases cheaper than, the seed you buy without knowing who grew it or anything about it. It is not a bit too early to make your preparations and be ready for extra-early cabbage next season.

POTATOES FOR FALL PLANTING.

For prices and full description of all the potatoes we recommend and sell, please send for our potato catalog. We offer remarkably low prices for fall shipment, and expect to be able to ship potatoes safely, by taking proper precautions in packing, clear through this present month of November—that is, unless the cold-wave signals shall seem to render it imprudent.

SECOND SIZE SEED POTATOES.

These are all closed out, with the exception of a few Puritan and Lee's Favorite. We have, however, a large stock of second-size Freeman's, T. B. Terry stock, and a limited supply of second-size Craig Seedling. Early Ohios are sold out, both kinds—firsts and seconds.

Oct. 31.—State of Maine potatoes are just sold out. We can purchase more (same lot), but will have to make the price 30 cts. instead of 25 cts. per bushel.

REDUCED PRICES ON SIR WILLIAM POTATOES.

After so many up and downs this new potato will now stand as below, and all who have sent in orders at a higher price will be charged only as follows (in new sacks or new largest-sized apple-barrels, f. o. b. at Hudson). Firsts, single bushel, \$1.10; 2 bushels, \$2.00; single barrel, \$3.00; 10 barrels, \$25.00. Seconds, of Sir William (planting size), 1 bushel, 75 cts.; 2 bushels, \$1.40; 1 barrel, \$2.25; 10 barrels, \$20.00. Orders will be filled at the above prices by W. I. Chamberlain, Hudson, O.; or, if more convenient, by ourselves at the prices given.

Kind Words From Our Customers.

The goods ordered were promptly received in good order. Every thing is perfectly satisfactory. Your hives, both in material and workmanship, *excel* all others in this vicinity. F. P. SARGENT.

San Bernardino, Cal., Sept. 4.

We are feeling good this morning because we took first and second premium on honey, and second on potatoes, at our county fair, for which we are indebted to GLEANINGS, A B C in Bee Culture, and the A B C of Potato Culture. I love to hear from A. I. Root and Tallmadge. C. A. PETERSON.

Boswell, Ind.

THE QUALITY OF ROOT'S SHIPPING-CASES.

Mr. Root:—Your 100 twelve-section three-row cases were duly received. They were at once nailed, filled, and crated, and on the 20th shipped to S. T. Fish & Co., Chicago. On the 23d they write: "Your honey arrived late last night, and we sold it this morning at 16 cts. per lb. We hope you are pleased with the price, and we must compliment you on putting up your honey, as it is as fine a package as we have received, and finer (with the exception of one man) than any one else puts up." That is what I thought of them when I put the first case together. Great minds frequently run in one channel; but when a small bee-keeper and a big commission house agree on a business matter, it must be so. The compliment is deserved by you alone, and it is but right you should know how we appreciate the fine work you are putting out. It meant for me a quick sale and an extra cent a pound. GEO. G. SCOTT.

Wadena, Ia., Aug. 24, 1895.

[See what S. T. Fish & Co. have to say about this, page 669, Sept. 1.—Ed.]

Belgian Hares! No better in America. Breeders, \$4 a pair; young, \$2. Heavy stock, first-prize buck. Stamp. W. W. KULP, Pottstown, Pa.

TRY US. We sell your Poultry, Veals, Fruits and all produce at highest prices. DAILY RETURNS. For stencils, prices and references, write F. I. SAGE & SONS, 183 Reade St., N. Y.

Golden's Feeder.†††

We can furnish the Golden combined feeder and hive-cover direct from the factory, as follows; without feed-dish, as any dish, such as Simplicity, answers: 1, made up, 30 cts.; 1, in the flat, 25 cts.; 10, in the flat, \$2.00. Send all orders to the A. I. Root Co., Medina, O. For large orders write the undersigned for special prices.

J. A. Golden, Reinerville, O.

In writing to advertisers please mention this paper.

Italian Bees Untested queens, \$1.00; tested, \$1.25. Bees by the pound, \$1.00. Full colonies, \$6.00; nuclei, 2-frames, with queen, \$2.50; 1-Queens. frame, \$2.00; queens after Aug., 50 cents. B. P. and W. P. R. eggs for setting, 15 for \$1.00.

MRS. A. A. SIMPSON, Swarts, Pa.

"The Southland Queen."

Send \$1.00 for the Southland Queen. Edited by the Atchley family. Plain, practical, and all fresh bee matter. Jennie Atchley is now conducting a bee-keeping school, that began in the June number. You can get back numbers.

A steam bee-hive factory; Root's goods; Dadant's foundation.

We have a fine lot of tested and untested queens for fall trade: Tested, \$1.50 each; untested, 75 cts. each, \$4.25 for six, or \$8.00 per dozen. Send for free catalog that tells all about queen-rearing, and sample journal.

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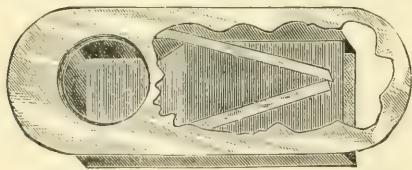
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Circulars free. Send 6c. for Illus. Catalogue.

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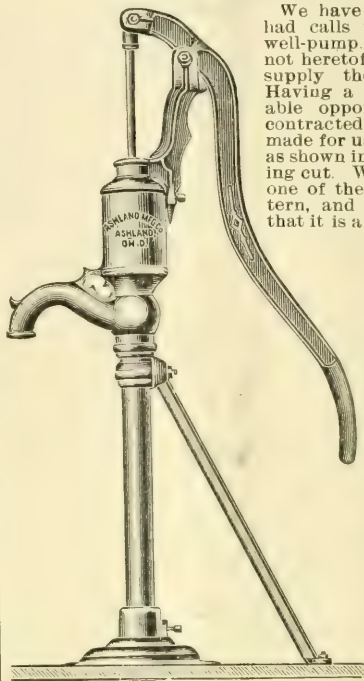
No sweat steals down the heated cheeks and aching back of the bee-keeper as the result of standing in the hot sun puffing, blowing, smoking, and brushing bees; no time is wasted in these disagreeable operations; and no stings received in resentment of such treatment; the honey is secured free from black or even the taint of smoke; the cappings are not injured by the gnawings of bees; and robbers stand no show whatever. If there are any broken burr-combs there are cleaned up by the bees inside the hive, before the honey is removed. **Leading Bee-keepers use the Porter Escape,** and say that without a trial it is impossible to realize the amount of vexatious, annoying, disagreeable work that it saves. The cost is only 20 cts. each, or \$2.25 per doz. As in the past, this escape is manufactured by the Porters, but The A. I. Root Co. has secured control of the sale for this country. Order of your dealer or of

THE A. I. ROOT CO., Medina, Ohio.

For \$350.00. One hundred 2-story hives complete for comb honey; bees and hives in good order. Inquire of **A. LEYVRAZ, Francis, Fla.**

Our Leader Pump,

For Wells and Cisterns.



We have frequently had calls for a good well-pump, but have not heretofore tried to supply the demand. Having a very favorable opportunity we contracted to have made for us 50 pumps as shown in the adjoining cut. We are using one of them in a cistern, and can testify that it is a good pump, and a special bargain at the price we ask.

Equal to pumps generally sold for \$7 to \$10. Our price is \$4.50 each; 2 for \$8.00. Quantities at very low prices quoted on application.

This pump has an adjustable base and brace, making it very easy to increase or decrease the height of the pump.

It has an improved,

reversible fulcrum or handle-bearer. This fulcrum differs from all others in that it extends downward to the bottom of the reservoir-head, forming a double bearing or support, doing away with the numerous set-screws commonly used on other pumps and which are so unreliable. The handle may be set opposite or at right angles to the spout, or, in fact, in any position.

It has steel bolts and plunger-rod, making it very much stronger and more durable than the ordinary iron bolts and rod generally used in the construction of this class of pumps.

It has an improved siphon spout and reservoir, causing it to throw a smooth, steady stream.

The pump is made with 1½-inch tubing measuring 4 feet to bottom of cylinder. We will include at the retail price 4 feet of tubing additional. Extra tubing, 1½ inch, at 10 cents per foot. Cylinder is iron, not brass lined. A brass-lined cylinder can be furnished for 75c. extra.

It may be used in wells to the depth of 20 to 30 feet, as well as in cisterns.

A \$9.00 Pump for \$4.50. 2 for \$8.00. Superior in every respect. Well-finished and durable prices in quantities.



The A. I. Root Co.,
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PREMIUM RULES.

Please Read these Rules Carefully, and thus avoid misunderstandings.

We believe most of our readers appreciate GLEANINGS enough to continue with us without the extra inducement of premiums. These are offered with a view of increasing our number of readers by the addition of new subscribers. The premiums are intended for those who, by personal effort, secure the subscribers. These persons are almost always those who already read GLEANINGS, and know what it is. We are glad, therefore, to pay you well for your trouble. *No premiums will be given to news-dealers or subscription agents.* 1. Both renewals and new names count toward securing premiums, but we require that AT LEAST HALF the names SHALL BE NEW SUBSCRIBERS. Note also exceptions under different premiums.

2. No name will be counted for premiums unless it is accompanied by \$1.00; and in case of renewals, all arrearages, if any, must be paid up, and \$1.00 sent for a year in advance—the advance subscription only, counting for premium.

3. You can close your list of names at any time, and call for the premiums due; or you can add to the list of names. But—

4. Send along the names as fast as gathered, so that the subscribers may begin to receive the journal at once. No subscription, under any circumstances, must be received for less than \$1.00 per annum.

Mark every name or list of names, "*For Premiums,*" if so intended, and we will credit them to the sender on our premium-record.

5. *Be sure to give the Name, Postoffice, County, and State, of each subscriber and of yourself.*

6. **All sample Copies** necessary to canvassers will be sent postpaid free.

7. When you order your premiums, be **sure** to state **HOW TO SEND**, and if by mail do not forget the postage.

8. **To Foreign Readers.** To all foreign countries, 48 cts. must accompany subscription for postage.

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By bank draft on any responsible city bank.

By express money order on any express company.

By postoffice money order.

If you send by any of the above methods, and your order should be lost, you can get a duplicate.

If there is no bank, express office, or money-order office near you, so that you can not use any of the above methods, you may send by registered letter, and we will be responsible; but if any of the methods first named are available, we will not be responsible for money sent in any other way. Do not send coin in letters; if you do, they are at your risk.

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Two Papers For the Price of One.

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There are, no doubt, very few readers of GLEANINGS who do not also take some agricultural paper. Among our very large list of agricultural exchanges there is not another one as pithy and to the point as the **Farm Journal**.

It is now in its nineteenth volume, and takes the lead among all the agricultural journals of this country and of the world. It gives no chromos, puffs no swindles, inserts no humbug advertisements, lets other folks praise it, and makes good to subscribers any loss by advertisers who prove to be swindlers. The editor was born on a farm, and reared at the plow-handles, and the contributors are practical men and women, who write with their sleeves rolled up, and who briefly and plainly tell

the best and most profitable way of doing things on the farm and in the house, as learned from actual experience. This is what has sent it ahead of all others in circulation.

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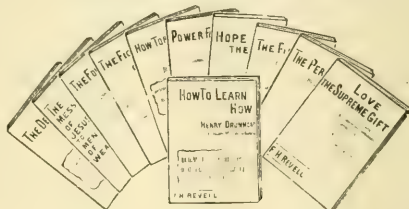
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To any one who sends us the name of a new subscriber for 6 months, with 50 cents, we will send any one of the above pamphlets, your selection, post-

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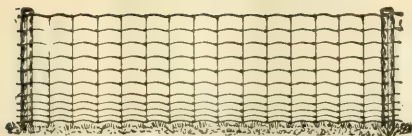
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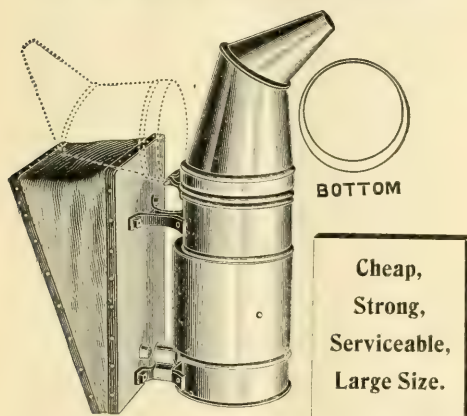
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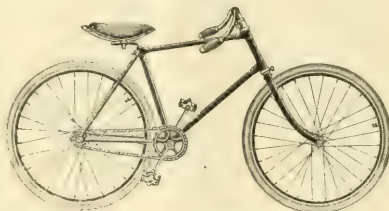
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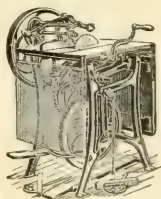
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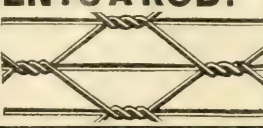
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J. A. GREEN, Ottawa, Ill.

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JOHN CADWALLADER,

Cedar Grove Farm, North Madison, Indiana.

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Beginners should have a copy of the Amateur Bee-keeper, a 70-page book by Prof. J. W. Rouse. Price 25 cents; if sent by mail, 28c. The little book and the Progressive Bee-keeper (a live progressive 28-page monthly journal) one year, 65c. Address any first-class dealer, or

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Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

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The Jennie Atchley Co., Beeville, Tex.

A Rich Dinner Can be Had by Using the

NO-BURN ROASTER,

which is made of materials that soften the heat, cooking whatever you bake or roast, with a heat something like steam or hot water, which allows nothing to burn or dry up; but, with absolutely no attention, whatever is cooked comes out juicy, rich, and very tender, and all the nutrients saved.

It will Make its Price

once a month in making more nutritious food, and will save its price nearly as often by not scorching or drying it. Nothing ever made like it before. It will sell to every family, if properly introduced. We want agents of either sex, and will guarantee big success if they do their part. Write for particulars.

J. K. PURINTON & CO., Des Moines, Ia.

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US. We sell your Poultry, Veals, Fruits and all produce at highest prices. DAILY RETURNS. For standards, prices, and references, write F. I. SAGE & SONS, 183 Reade St., N. Y.

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W. Z. HUTCHINSON, Flint, Michigan.

Don't Miss This Big Offer!

IT STILL HOLDS GOOD.

A Full Report of the Proceedings of the North American convention held at Toronto, Canada, will appear in the *weekly* American Bee Journal immediately after the meeting, Sept. 4, 5, and 6. The first installment will be in the number for Sept. 19. If not now a subscriber, you can have that Report free by sending \$1.00 now for the American Bee Journal for 1896, as we will "throw in" the balance of the year 1895, beginning with Sept. 19, to new subscribers. Think of it! over 15 months (or nearly 70 numbers) of the old American Bee Journal for only \$1.00! Sample copy of Bee Journal free.

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We make a specialty of these goods, and defy competition in quality, workmanship, and prices.

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A customer, looking over my 400 hives in home apiary, said, "Where are your bees? Mine were flying all around thick this morning." I said, "Just stop; look down at any hive." He was amazed. They were just pouring in thick with their heavy loads. This proves two things—they can't be excelled as workers, and quiet.

I opened several hives. He had no veil; was in the apiary 1/2 of an hour; was not bothered once. Try them. Untested guaranteed queens, 75c. Send for wholesale price list.

Wm. A. Selser,
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Dovetailed Hives.

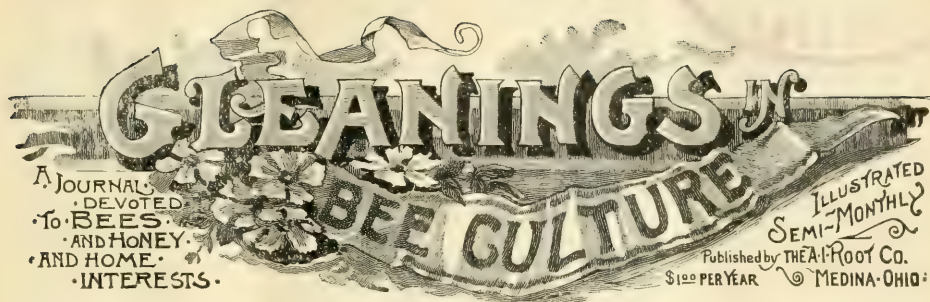
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Awarded my Foundation. Send for free samples. Dealers, write for wholesale prices. Root's new Polished Sections and other goods at his prices. Free Illustrated Price List of every thing needed in the apiary. Bell Branch, Mich. M. H. Hunt.

In responding to these advertisements mention this paper.



Vol. XXIII.

NOV. 15, 1895.

No. 22.

STRAY STRAWS FROM DR. C. C. MILLER.

I'M RIGHT GLAD A. I. Root is on the sick-list.

VOGEL scouts the idea of crossing *Apis dorsata* with the common bee. [Who said they could be?—ED.]

WEYGANDT finds that virgin queens are fertilized sooner if taken to a distant apiary than if left at their own home.

THANKS to Bro. Poppleton for light given, p. 807. He encourages me to think that my scheme outlined on p. 740 may possibly work all right.

IN ENGLAND they have been having trouble in some law cases to decide whether or not beeswax is a drug. Not much of a "drug on the market," anyhow.

WILL A YOUNG QUEEN make her bridal excursion so long as unsealed brood is present? Gravenhorst says he has never known it to occur except in a single instance.

THE BEE CLOVER that I asked about Sept. 15, L. P. Cousins writes he has grown for years. "When once seeded it will seed itself like caraway; will scent your whole garden."

RAPID FEEDING. The slower this can be done the better, provided there is time. I find from experience that rapidly fed stocks are generally weak in the spring.—*Apiarist* in B. B. J.

THE GREAT VARIATION in the weight of bees given on p. 800—from 3000 to 10,200—will be better understood when it is mentioned that the 10,200 bees in a pound were brought to the starving-point.

I SAID I WAS GLAD A. I. Root was on the sick-list—not that I wish him harm, but he's hunting up some useful things that the rest of us can have the benefit of; and if he'd stayed well and strong he never would have thought of them.

L. P. COUSINS writes that he has wood-base foundation in a number of hives, and the combs are as fine as could be desired. One's sympathies are aroused for the family of the inventor, who is now hopelessly insane.

MY LITTLE PATCH of crimson clover looks quite green the first of November. Sown with oats in spring it bloomed pretty well, and I supposed would be dead long ago; but I don't expect it to stand the winter.

HASTY says in *Review* that "a hive needs a visible number on it no more than a toad needs a tail." Which makes me think, in view of the confidence I put in Bro. Hasty's judgment, that I may have underestimated a toad's need of a tail.

A STRAW on page 800 says, "I have thousands of sections filled with foundation." Certainly not a remarkable statement, but please add to it something like this: "three or more years old that I expect the bees to accept all right next year."

I DON'T KNOW about that opinion "that the beginner had better commence with the small hive." Too much danger he'll let his bees starve, unless, indeed, he uses the small, hive two stories. [I don't know—I don't know but you are right.—ED.]

I FIND some excellent hymn tunes written by E. E. Hasty—same name as the one who writes such wonderfully bright reviews in *Review*. I suppose it's the same man. [That Hasty is an all-around genius, and a lover of the really beautiful in life.—ED.]

GRAVENHORST says you could not make a worse mistake than to try to winter on combs entirely filled from top to bottom with sealed honey. [It would be bad policy; but there are, in my estimation, many worse things that could be done.—ED.]

IN REPLY to my question, "What constitutes too large a colony?" friend Hand says, p. 809, "Too many bees." That throws a flood of light upon the question. Now will he kindly tell us how many he thinks "too many"? [We will leave friend Hand to answer.—ED.]

IN GERMANY the Koehler plan has been practiced with some success in controlling fertilization. Put the queen with the selected drones in a nucleus, keeping them in the cellar all day, and let them fly after 5 o'clock. Repeat daily till successful.

CRIMSON CLOVER, says a writer in *B. B. J.*, is only now getting in America the reputation it has long had in England as a honey-plant; but he says they've also found out its honey is by no means first-rate. [I suspect it will do better in England because the climate is milder than here.—Ed.]

S. JORDAN relates in *B. B. J.*, that, after transplanting pyrethrum-plants, he attempted to handle his bees, but they came at him in such shape that he "hastened" from the field. He washed his hands and returned to the bees, and the viragoes of three minutes before were now gentle as sucking doves.

THINKING OVER friend Hatch's answer, p. 810, I'm inclined to think the $\frac{1}{2}$ -inch space between the two stories may have had something to do with his queens not going up and down. My bees went up and down all right this year, with about the same conditions, only mine had only $\frac{1}{4}$ -inch space to cross. [Yes, there is the difference.—Ed.]

LOOKS A LITTLE as though A. I. Root was to have a rival in B. Taylor as a high-pressure gardener. Bro. Taylor says in *Review* that his honey crop is a failure, but he has a bountiful crop of almost every thing on a half-acre of land. Some fair crops on my land this year, too, but I didn't raise them. Nor a crop of honey either.

FOUNDATION-FASTENERS, says C. W. Dayton in *Review*, instead of having the melted wax run to the rear end of the plate and drop off, should have it run to the front edge and drop off on the section. The extra melted wax would fasten the starter more firmly, but in some cases it might cool too slowly. The present fasteners make pretty solid work though.

B. TAYLOR reports in *Review* that he made 250 sheets of foundation without side walls—sheets thin, and rolled so as just to shape the cell-bottom—and put in wired frames; they made model combs of straightness and beauty. [Don't doubt it; but it was a waste of wax. Foundation with *good side walls* and a *thin base* is much cheaper per square foot, and is just as good.—Ed.]

I'M NOT MUCH of a novel-reader; but when I got hold of the new book, "How to Get Well and Keep Well," I acted like one, for I just let all my work go and read it right through without stopping. If you want to know all about the Salisbury treatment, by all means get the book. Whether you care for the treatment or not, you'll get some excellent ideas from the book.

MRS. EDITH MILLER, editor of the *Kansas Bee Journal*, is a clipper. At any rate she makes good work clipping paragraphs from the bee-journals and massing them under the title, "What Others say." [Yes, indeed, Mrs. Miller is a success as a clipper of good things. There are other good things in her paper besides, although it is only a youngster.—Ed.]

THE EDITOR of the *American Bee-keeper*, after attending the Toronto convention, says, "Any one can find fully as much to interest him in almost any single copy of any of the bee-papers as was heard during the entire convention." Pretty poor convention that, measured by some of the bee-papers. [The editor of the *A. B. K.* has not been at bee conventions enough, or kept bees enough to form a proper opinion, I suspect.—Ed.]

YORK AND HUTCHINSON are favoring a trial of having the North American meet at the same time and place as the G. A. R. That would make low rates sure, and we can stand almost any inconvenience if we can only have railroad rates low enough. [I am with York and Hutchinson. In order to get any kind of attendance we must have it held where low rates will be secured independent of the bee convention. This $1\frac{1}{2}$ -fare business, as Hutchinson says, amounts to nothing.—Ed.]

GERMANS are sometimes prodigal of words, but in one case at least they are more economical than we. Instead of saying a plant "yields honey," they just say the plant "honey." I wish we had such a verb. [Bee-keepers, or, rather, editors of bee-papers, might do much at simplifying our nomenclature, without offending good taste or obscuring the meaning. For instance, Langstroth recommends the words "queen" and "unqueen" as verbs; and S. T. Pettit would use "floor" instead of bottom-board, and "bar" instead of perforated metal. GLEANINGS will be glad to assist.—Ed.]

THE SUBSCRIBERS of GLEANINGS are fewer than I supposed, if each one can have a pound of potatoes out of that five barrels—see p. 819. [Look here, doctor, I did not say that every subscriber to GLEANINGS could have a pound of potatoes out of that five-barrel lot. Didn't I say in plain English, "If you do not want to take the trouble to get a subscriber to GLEANINGS, make some of your friends, who you think would be interested in it, a present of it for one year, and we will send you the pound of potatoes"? My offer was made in order that we might get GLEANINGS introduced into families or neighborhoods where it has never been before. Of course, the one who sends us a new name must be a subscriber to GLEANINGS himself. Then I added, if it was too much trouble to hunt up a new name, make somebody a present of it. Very likely I did not make it as plain as I might have done, but I think you

will understand it now. One friend sends us \$10.00 (for 10 lbs. of potatoes), with two new names, and says for the other *six*, "Send me GLEANINGS six years." Oh dear me! I was afraid all the while I should get into a muddle. Now I will tell you: if any of you want to subscribe away ahead we will put it this way: You will want to take GLEANINGS for 1896, most of you, any way—at least I hope so. So we will call that settled. But if you can not get a new subscriber anywhere around you, then just send us \$2.00—half of it for 1896 and the rest for 1897—and we will mail you the pound of potatoes, and you need not do any hunting. By the way, doctor, if I had my way about it I would tell just how many subscribers to GLEANINGS we do have, every issue. But some of the younger Roots think it is not customary, and perhaps not exactly business-like. I will tell *you*, however, in strict confidence, because you are an old friend, that we have somewhere between 9000 and 10,000 paid-up subscribers just now.—A. I. R.]

CALIFORNIA ECHOES.

By Rambler.

Dr. Miller is such a musical man that it seems "Stray Straws" is a misnomer. How would it do, doctor, to change the name to "A Harp of a Thousand Strings"?

Mr. Dosch, on page 737, describes just the way I used to feel after a disastrous wintering of bees in York State. Remedy, pull up stakes, and pull for the bee-keeper's refuge, California.

Later.—If Mr. Dosch lets his neighbor Shaw (see page 770) get so far ahead of him, with only three intervening miles, Dosch had better stop in Arizona.

On page 739 Dr. Miller brings out the idea that lifting heavy hives is a work that some people can not do. I found a case here a few days ago where a threescore-and-ten bee-keeper of feeble frame had shortened his L. hives several inches in order to bring them within his lifting powers. A jumbo hive may be the thing, but it must be a permanent institution, like a house or a barn.

Did you notice what Prof. Verlinden said on page 737, about churning honey? That's just the trick I tried several years ago. I used a quart fruit-jar, and operated the dasher by a slack pulley on a belt from an engine. I could keep the churn going all day. I think it did hasten granulation; but, professor, we want a machine to *prevent* granulation. Can you help us?

A little further along Prof. V. says of a bee-keeping specialist, "He buys much honey of strangers which he *manipulates* before he sends it to its destination." Well, well! with what *sang froid* he says it too! Tell a bee-keeper in

this country that he *manipulates* his honey, there'd be a little dust, a little blood, bruised hat, torn coat, and the best man on top.

Mr. D. A. Wheeler, of Riverside, who owns about 1000 colonies of bees, and has produced about 55 tons of honey during the past season, soon leaves for Chicago, where he will establish a house for the sale of California honey. Mr. Wheeler proposes to pay cash for all of the honey he handles for other parties. The present ruling price here is 3 to 3½ cents for extracted honey, and 8 to 9½ for comb, and but little demand at those figures.

It seems that we want *Apis dorsata*, and then we don't want her. Now I have a plan. When Uncle Sam gets ready to send me rambling after Miss Dorsey I'll sail right off into the Pacific Ocean till the bee is caught, then plant a few colonies on the Sandwich Islands, to see how they stand "furrin" parts. If they are desirable for the islands, of course they would be for California, and could be wafted to our shores. No patent on the fore-going, and the route is open to all contestants.

PICKINGS BY THE WAY.—NO. 1.

By Skylark.

INTRODUCTION.

Some people here call me the "literary giant," and others an "idiotic giant." Besides, there are still others who say I have the "big head." The two latter classes have a large majority. The term "giant" refers entirely to the large amount of undeveloped intellect stored away in my mind, and not at all to my person, which is not over ordinary size, and very *elite* and distinguished. When one aspires to high literary honors, the public wants to know who he is and whence he came. I sent my brother to the Mexican war, and he whipped the Mexicans. My father was in the war of 1812, and whipped Great Britain. My grandfather *would* have whipped the Tripolitans in 1804 if he and two other lieutenants had not voluntarily "blown themselves up." They took a fire-ship into the harbor of Tripoli, loaded with 100 barrels of powder, to blow up and burn the enemy's shipping. Being discovered and overpowered they voluntarily set fire to the powder and blew their enemies and themselves into the air. Congress passed a resolution of sympathy for the families of these "noble men," and advised all their noble descendants to follow their example.

Now, I love my country. I love the old flag, and I love Congress, and I want to obey it. Do you, Mr. Editor, know any easy way that a man could blow himself up and not get hurt? The only way I can think of is to go to war in GLEANINGS, and I shall be blowed up often enough, I suppose, and Congress will be satisfied.

Did you ever see a mule try to kick himself to death with the agility, perseverance, and self-determination that Bro. Dayton evinces on page 729? He is actually trying to do that very thing. I do not intend to reflect on his moral character. The mule is a gentle, docile, patient, and useful animal—when he is good. But with all these excellent traits he is not to be depended on as a bosom friend. I say this with deep regret, for I once had a mule that I slept with—about forty yards off. Neither do I intend to reflect on his (brother Dayton's, I mean) intellectual abilities. He may have an intellect *almost* as stupendous as my own, but—but I have my doubts.

I only wish to illustrate the eagerness with which he rushes on to self-destruction. When a professional bee-keeper asserts "that half the honey that leaves this coast is adulterated with glucose," can he blame outsiders for taking up and echoing the cry? This is the wildest assertion I have seen in any bee-paper for a long time. It is not only *not true*, but, at the present price of extracted honey here, it is absolutely ridiculous.

Glucose is not produced on this coast. It must be brought from the Missouri River. It could not be made here with profit, where corn meal is retailed at $2\frac{1}{2}$ cents per pound. I suppose glucose would cost 2 cents per pound; freight overland, $1\frac{1}{2}$ cents; drayage at both ends of the line, handling, and mixing, at least $\frac{1}{2}$ cent more. Then each 120 pounds of glucose would take a new case and cans—say 80 cents more. This would run the cost up to $4\frac{1}{4}$ cents, while pure honey could be shipped at $3\frac{1}{2}$ cents. Even if glucose could be bought for *one* cent a pound, the mixture would still cost as much as pure honey. More than two million pounds of extracted honey have been sold on this coast this year for $3\frac{1}{2}$ cents; and even now they are offering only $3\frac{1}{4}$. No large house could stand up under such transactions as friend Dayton describes. No house of that kind would last more than one year. Moreover, it would not be a financial success unless they would *steal* the glucose. I know they have not done that. I am sure of it. I am known in San Francisco to be the most successful remover of large quantities of goods, when the owner is not there, that there is on the Pacific slope. None of the large honey-shippers have made application for my services.

I do not believe that one case of honey in 20,000 that leaves this coast is adulterated. No double-gear'd idiot, standing on his head, would think of it. Really, I believe the man wants to blow himself up. Look here, Bro. Dayton, don't you do it. I am the only man in all these United States who has the authority of Congress to blow himself up for the good of his country and his fellow-men. Don't you do it. I don't want to see you shot, imprisoned,

fined, and hung! Look at the awful prospect before you. Look at the court, the crowd, the scaffold, and the grave!

The latter part of Bro. Dayton's letter is an absolute wail of agony against the retail grocer for selling sugar too low and honey too high—against the Speckles monopoly, the county supervisors, town councils, merchants, adulterators, etc. Bro. Dayton, if you survive the catastrophe I have indicated above, why not get aboard of a Kansas cyclone and run the whole "bilen" of them down?



RAMBLE 143.

By Rambler.

On the 6th of December we entered the tail end of the Sanfrancisketo Canyon, and our ponies put us many miles toward home, for we were on the down grade all day. Mountains hemmed us in; wild scenery; side canyons, rugged cliffs; winding glades, and finally a nice stream of water, a branch of the Santa Clara River.

This is a good honey-producing canyon, and we often caught a sort of panoramic view of an apiary as we whirled along. They were not in a high state of order; things were tumbled around as though a brace of bears might have been turned loose among the hives.

The locality is certainly wild enough and lonely enough to suit the most hermit-disposed bachelor.

The last apiary we passed, we learned afterward, was owned by Mr. Mercer, of Ventura. The wind could whistle through every thing on the plantation, and we noted that the honey-house was well ventilated. The view from the highway was highly satisfactory to our curiosity, and we kept right on our way, and camped that night under the broad-spreading oaks just out of the town of Newhall.

The rains descended that night; the wind blew; the thunder rolled, and we had a hard time keeping our tent from going over the trees. Our sleep was of the restless order, and we were happy to see the morning break, with prospects of fair weather. Just six months before we had crossed the San Fernando Pass, and it was then arduous climbing; but now, after the heavy rain of the night, we feared rough roads, and we were not disappointed. Our wagon swayed through wash-outs and over debris; and we had gotten well down the other side, and were congratulating ourselves that the worst was passed, when we came to a little stream of water running quietly across the

MOSES R. CHANDLER'S FRUIT-RANCH AND APIARY, SAN FERNANDO APIARY, CAL.



road. It had been a torrent during the night, and had left quite a space of soft mud or quicksand in the road. The ponies plunged into and through the mud. Our wagon reached the center, and the mud and quicksand closed around the wheels, and we were firmly locked against further progress. Progress was our watchword, and the whip was applied to the ponies for a desperate pull. Result, a broken whiffletree. Our progress was from bad to worse.

Just at this moment a traveling emigrant family, with a prairie-schooner outfit, came up to us. They kindly loaned us a shovel and ax. Wilder cut a big lever, and I shoveled and he pried. As fast as I could take out a shovelful, another shovelful of soft quicksand would take its place. We spent some time in this delightful exercise, with our feet in mud and water, without satisfactory results.

Then it commenced to rain—a real smart mountain shower; it pelted us thoroughly: the water zigzagged down our spinal columns, and everybody, even the horses, looked and felt their unlimited disgust.

But, wait! It rained enough to send a little stream of water down the road behind our wagon. It runs parallel to the right-side wheels of the wagon, and, as sure as you live, it is washing the quicksand and mud away from them. Quick now! With the shovel we divide the little stream and run half of it to the other wheels, and in a few minutes the wheels are all washed free. The shower passes; the ponies are attached to the end of the pole, and out goes our wagon with a rush. A bailing-wire mends our whiffletree, and, after an hour's vexatious delay, we are able to proceed upon our journey. The shower feature of our mishap, which we looked upon with such disgust, proved to be our best friend. Parties afterward told us that we were very fortunate to have the shower, for in like mishaps they were obliged to take their wagons apart and dig the wheels out with a pick.

Moral.—In this journey of life, many times what we consider misfortunes are our best friends. So let us learn to be cheerful, not repining under any circumstances, however dark and forbidding they may appear.

Sweet are the uses of adversity,
Which, like the toad, ugly and venomous,
Wears yet a precious jewel in his head.

That night, after a long and forced drive, we halted at the residence of Moses K. Chandler, at Dundee, 13 miles from Los Angeles. We rejoiced that we were now over all of the mountain ranges, passes, and canyons, and under the roof of a hospitable bee-keeper. We had been in wet clothing all day, and we made good use of the kitchen stove, for getting rid of surplus moisture,

Mr. Chandler has a pleasant home, as shown in the accompanying half-tone. It is close into the foot-hills that border the San Fernando Valley. Fruits of many varieties, both great and small, are successfully grown, and 130 colonies of bees help to swell the revenues of the ranch. This is one of those ideal locations I love to find—a location where the bee-keeper and his family have a permanent residence near the apiary. Mr. Chandler gets excellent yields from his apiary; and, living so near the great and prosperous city of Los Angeles, and, furthermore, being somewhat of a salesman, he finds a ready and remunerative market for his ranch products—green fruits, dried fruits, nut-, honey, and an occasional load of vegetables.

The reader will observe through the photo that the ranch has a prosperous appearance; but at this writing, some months after the



CHANDLER'S HELPER.

photo was taken, Mr. C. has prospered so much that he is building a fine modern residence upon the site of the little white cabin. Mr. C. has an efficient helpmeet in the house, who keeps things well in hand for whatever business may come along. A young lady is stopping in the family, who has taken up the manufacture of tin cans for honey. She first made the cans for Mr. C.'s honey crop, and succeeded so well in wielding the soldering-iron that scores of cans were turned out for the neighboring bee-keepers, and the miss does not aspire to be what is called a "new woman" either.

Another very faithful helper on the ranch is Chinaman Hop Lee. He has been with Mr. Chandler for several years. A few years ago, when there was much excitement in this State in relation to the employment of Chinese, a notice was served upon Mr. Chandler, commanding him to discharge the Chinaman. Now,

Mr. C. was born among the cloud-capped granite hills of old New Hampshire, and he did not propose to turn off one foreigner at the command of other foreigners, and had the independence to say so. Things looked a little squally for a while, and Hop trembled in his brogans; but Mr. C. stood firmly by his word, and the Chinaman Hop still eats rice with chop-sticks in the little cabin shown in the photo, between the apiary and the residence.

In an interview with Hop in relation to bee-stings he said, "Him blee heep stling; heep stling Mr. Chandler; heep stling horseshes; me no like him; me slay in tluhn honey-extractor; get heep honey; pleek thro wire windlo; slee Mr. Chandler get stlung; me ha-ha; him slap his hands; him no swear like some Melican men. Mr. Chandler heep glood man; me no swear too. Me feel heep comfble in honey-house."

We camped over Sunday with Mr. Chandler, and found them to be good Salvation Army people. The daughter, holding the position of lieutenant, is earnestly holding out the rescuing hand in the various places to which she is assigned in Southern California.

Early Monday forenoon we turned into the San Gabriel Valley, and saw in the distance the snow-capped peaks of the San Bernardino range of mountains. Our ponies here caught some enthusiasm. They evidently knew the landmarks, and put in a good day's travel on the home stretch, and in the early evening of the 11th of December we arrived at the residence of our friend and near neighbor, Mr. Clark, and considered our journey at an end.

For six months our home had been, in every sense of the word, migratory. New scenes and experiences had been our pleasure from day to day; and even after six months of it we were loth to return to the quiet every-day duties of every-day life.

When we repaired to our respective bachelor's cabins we were for a time oppressed with a sense of dullness. During the many rainy days that followed we felt decidedly more comfortable under a shingle roof than we did under the dripping tent roof. Then the raindrops brought consoling thoughts of big honey-yields for the coming season.

No man is born into the world whose work
Is not born with him; there is always work.
And tools to work withal, for those who will;
And blessed are the horny hands of toil.

Our work is to produce honey. Our tools are the busy bees and the hives. In preparing them for the prospective good season, dullness soon left our cabins, and the imagined pleasures of producing tons of honey took possession of us.

Though our work did not produce the horny hands, it was blessed with good results, the account of which will appear later.

THE NORTH AMERICAN AND THE UNION.

SHALL WE HAVE LARGE MEMBERSHIP AND SMALL FEE, OR SMALL MEMBERSHIP AND LARGE FEE? WHY WE SHOULD HAVE THE FORMER.

By Dr. C. C. Miller.

I'm looking for good to result from the action at Toronto with regard to the North American and the Bee-keepers' Union. Rev. W. F. Clarke is right in saying the North American has always been local—at least nearly right—and it always will be mainly a local affair just so long as it is so managed that only those who attend have any inducement to become members. So far the effort has been to secure attendance, not membership. That must be entirely changed if it is ever to be any thing more than a local affair. When comparing the membership of our societies with that of societies across the sea, it has been the custom to say that the great distances in our country preclude the possibility of having a large membership. That's all bosh. A man may be a member without attending; and if he doesn't attend, it's just as easy for him to become a member a thousand miles away as a hundred.

But I confess I don't understand Mr. Clarke when he says the North American has always been a "primary class of bee-keepers." I wish he would explain what he means. Is it the character of the men who have been in attendance, or is it the character of the discussions and deliberations that makes him classify it as he does? If the latter, what change would he recommend to make it "a high court or parliament of bee-keeping"?

MEMBERSHIP FEES.

At Toronto, Mr. Clarke said of the North American, "When we get down so that we have to pay only 25 cts. a year I don't want to belong to it." Why? I think both Mr. Clarke and myself have got down so we don't have to pay even 25 cents a year. Is that any reason we do not want to belong to it?

Mr. Newman thinks nothing will kill a society sooner than an insignificant membership fee. A small fee doesn't seem to have killed the many societies in foreign lands. What do we want of a fee larger than sufficient to pay expenses? He says, "The Bee-keepers' Union is respected, not because it has a membership of 300 or 400, but because it has a good bank account." Part of that is true. It is respected for its bank account, and that respect is neither increased nor diminished by the fact that the amount in bank came in large or small sums. But the intimation that numbers count for nothing is hardly correct. An organization of 1000 receives, as a rule, more consideration than one of 100. Now, suppose the membership is increased from 300 or 400 to 600 or 800, and the membership fee cut in two, leaving the bank account the same, will not the larger membership

with the same bank account have just a little more respect?

BUCKWHEAT HONEY VS. SUGAR, FOR WINTER.

A correspondent having extracted buckwheat honey from unfinished sections, and needing to feed for winter, wants to know whether it is better to feed the buckwheat honey or sugar. If I had the buckwheat honey in brood-combs all ready for use I'd use that for winter food rather than take the trouble of extracting and then feeding back. But if I had extracted buckwheat honey, with sugar as it now is in price, I'd sell the honey and feed sugar—all the more if the honey was extracted from unfinished sections, for in that case it would most likely be unfinished honey, and not the very best for winter stores.

A QUESTION OF MOVING.

The same correspondent is in a little doubt whether it is better or not to move his bees to a new location. Where he is in Pennsylvania, the lindens have been mostly cut off, and pasturage is getting scarce, except that some fifty acres of crimson clover have been sown within reach this summer. A location with which he is familiar in Virginia abounds in linden-trees that were loaded with bloom the past season.

Leaving out all questions except what is best for the bees, I think I'd take my chances on the Virginia territory. Linden rarely fails, and at its best is an immense yielder. Crimson clover is as yet an unknown quantity. Even if it be found that it will succeed perfectly in Pennsylvania, and if, too, it be found that it yields well, it will still be an uncertain quantity, for it must be sown annually; and whatever may be the amount sown this year, you've no guarantee that an acre will be sown next year, while your lindens are there as a fixture, and at the worst will be only gradually cleared away. Then, too, if the same amount of the crimson clover is sown every year, a large part of it may be plowed under as green manure; and of what use would that part of it be to the bees? The most reliable part will be that used for raising seed, and that is not likely to be large. I don't want to throw cold water upon the expectations as to crimson clover. I hope much from it; but when it comes to comparing chances between that and linden, with our present knowledge crimson clover is nowhere.

ROBBERS.

I had a little scrimmage with robbers this fall. It was at the time we were taking away from the bees in the home apiary all lower stories, some of the lower stories having considerable honey. A few frames, which we carelessly supposed to be entirely empty, but with a little honey in them, were left standing by a tree. When I first noticed the bees at work on them I thought it best to leave them, as there was only a little honey in them; and taking them away before the bees had emptied them and realized they were empty would only set the robbers at

work on the nearest hives. Whether these combs were directly to blame I don't know; but at any rate the next day I found lively times at No. 82 near by. I went and got some hay—not a few spears, but a whole armful—threw some loosely at the entrance, and then kept adding till the entrance and the entire hive was covered. Then I got buckets of water and thoroughly wet down the hay, and left the bees to their fate. I left the hay for a week; but there was no appearance of robbers shortly after the hay was put there. When I looked into the hive a week or so later I found a good colony there; but the robbers had emptied the three outside combs before they had been stopped. If they had not been meddled with I think the colony would have been ruined. No. 19, in the opposite row, was having a little trouble with robbers at the same time, but I didn't think it would amount to much. I didn't notice it till a week or two later, when I found it empty of honey, with the queen and a dozen bees. If I had given it a good feed of hay it might have been saved.

SWEET CLOVER HEAVED BY FROST.

On page 643 A. I. Root says of sweet clover, "It is never heaved out by the frost. So far as I am informed, the frost has never yet been able to budge a root of it after it had made one season's growth." I think you forget, friend Root, or else you overlooked a report that I made in GLEANINGS a few years ago. It will be easier for me to repeat it than to hunt it up and refer you to it; and, moreover, it may be worth more now than when first written, for I think more sweet clover is being now sown.

I had a piece of ground carefully prepared in the spring, the soil being made very mellow. It was sowed with oats, then with sweet clover. The sweet clover came up thick. The spring following I went with a good deal of interest to see what the sweet clover was like, and was very much surprised to find no living plants. I think there was not a single one. Plenty of dead plants were there, lifted bodily up by the roots. A point perhaps worth noticing was, that the plants were all small, not more than half the size that plants usually make in hard ground in the first year of their growth. So I conclude that adversity is good for sweet clover, and that the seed does best in hard ground.

Marengo, Ill.

[I think you have answered it yourself, friend M. The seeding was too heavy. A single plant of sweet clover on any kind of soil, no matter how poor, if there are not too many other sweet-clover plants all around it, will make such a growth, providing it has the whole season, that it is almost next to impossible for it to be heaved out by the frost. All along the ground beside the railroad which has recently been cut through my garden there are plants about as thick as they ought to stand; and I have never yet seen one thrown out by the frost; while alsike, red clover, and other plants, are frequently heaved up clear on top.—A. I. R.]

Our Symposium on Wintering.

The Subject Reviewed by a Few of the Prominent Bee-keepers who Have been Successful in Wintering for Many Years back.

ESSENTIAL CONDITIONS; THE MODERN OUT-DOOR AND INDOOR PLANS FULLY DESCRIBED; PACKING; UPWARD AND BOTTOM VENTILATION; SEALED COVERS; SUB-EARTH VENTILATORS; MODEL BEE-CELLARS, AND HOW TO CONSTRUCT THEM.

[A few years ago the subject of wintering was an old and hackneyed one until it was chopped off. There were a good many conflicting theories, and many were losing heavily. But in later years these theories have come more and more into harmony, and success is crowning the efforts of nearly all. It seemed to me it might be well for us to devote one whole number to a review of the subject, to consider the essential features, and those points upon which there seems to be now general harmony of opinion. I therefore asked a number, as before stated—those who write only occasionally, but who nevertheless are very successful—to give us briefly their methods, wherein they attain success, and then to tell us briefly what things they had learned in the last few years.* Among other things, I told them not to be afraid to go over old ground; that we desired to see how many prominent bee-keepers were following essentially the same methods. If these methods should be largely the same, it would be proof that they were nearly correct. While one might suppose that one article might be largely a duplicate of another, each writer treats the subject in quite a different way, as the headings will show.—ED.]

OUTDOOR WINTERING IN VERMONT.

THE IMPORTANCE OF A BROOD-NEST SUITED TO THE SIZE OF THE COLONY.

By J. E. Crane.

About the middle of September, or as soon after as I can get to it, I look over my bees and carefully weigh with my eyes the amount of honey that each hive contains, and set down the amount of sugar syrup that each needs to carry it until warm weather or spring flowers, beside the number of each hive. At this time I also see that each colony has a laying queen. If any are queenless they are broken up. If I find any drone-laying queens, the colony is united with others. I also note carefully the size of each colony, and *reduce the brood-chamber to correspond with the size of the colony.* I then feed sugar syrup, containing some honey, as quickly as possible, in quantity such that each shall have of honey and syrup from 12 to 30 lbs. This is to include the stores of honey in the hive before feeding. I expect to have my feeding all done by Oct. 15th.

I winter my bees on their summer stands, and the next thing to be done is to pack for winter; and I prefer to pack at once as soon as feeding is finished. I was 11 days this year

feeding about 8500 lbs. of syrup, most of my bees being from 3 to 11 miles from home, with only one horse to draw it.

For packing I use sawdust, chaff, leaves, and planer-shavings. All are good, but the wind blows the leaves at times very uncomfortably, and chaff is very apt to attract mice; and the sawdust has a way of getting through any little crevice or hole, so I dislike it, and prefer planer-shavings to any thing else.

As I leave the packing around the sides of the brood-chamber during the summer I have little to do but spread a cloth over the top of frames, and fill one side of the brood-chamber, if empty, with shavings, perhaps a few around the upper edge of the brood-chamber, and lay over the whole a cushion filled with packing, and tuck down snug and warm.

For cloths to lay over the frames I use cotton cloth, old pieces of carpeting, old woolen cloths, straw matting, and any thing that will let the moisture pass through. Burlap is good. Matting made of cocoanut fiber is perhaps the best, or at least will last longest. I have used enamelled cloth, and very strong colonies seem to winter well under it; but I do not find the combs as dry and clean as when some cloth of open texture is used.

About half or two-thirds of the way from the bottom to the top of the brood-chamber in front I have a tube $\frac{3}{4}$ or $\frac{1}{2}$ inch in diameter to connect the inside of the chamber with the outer world. In other words, I have an upper entrance so that, should the lower entrance get clogged with dead bees, the upper one can be used by the bees and so prevent their worrying themselves to death.

Treated in this way, bees winter here in Western Vermont year after year safely, and, I believe, economically. My bees, so far as I know, are now all snug, and warmly packed this Oct. 24th, and will require very little farther attention until April. Should the weather be warm, the bees can fly and enjoy it. If cold, they can remain snug and warm in their nests.

Were I asked what I have learned in recent years in wintering that is of importance I should say, *the value of having the size of every brood-chamber correspond with the size of the colony that is to occupy it.* Quinby, in "Bee-keeping Explained," says that a small colony will consume nearly as much honey as a good-sized one; and when both are wintered in the same size of hive he is undoubtedly correct; but my experience has been that, when the brood-chamber is reduced to fit the colony, the consumption of honey during winter does not seem proportionately greater for the small colony than the large one. Nor yet do I find the loss greater of small colonies properly put up for winter than large ones.

My theory is, that, if a good-sized colony should have eight frames to winter on, and 30

*I did not call on the regular contributors, because we were familiar with their methods.—ED.

lbs. of honey, a colony half its size will winter well on four combs and 15 lbs. of honey. Of course, after warm weather, and brood is maturing rapidly, the small colony will need more honey than the large one in proportion to its size, for it will mature brood almost as fast, oftentimes.

Now, if it is such an advantage for a small colony to have its hive reduced, would it not be a saving in honey to place a strong colony on, say, six combs? I answer no. They would be likely to consume even more honey than if left properly packed upon eight combs. The strong colony is liable to be overwarm and restless, and to rear a large amount of brood in winter, thus wasting its stores and vitality both. So I use the division-board freely, and have brood-chambers of all sizes from four to nine or ten Langstroth combs, and I have wintered very small colonies upon three combs with entire success.

Last winter, in my home yard and one three miles west, consisting of over 200 colonies, I lost, previous to May 15, but four, and one of these was broken up by thieves. Another was overlooked, and the frames but partly covered by a loose board, leaving less than one per cent loss from wintering. In another yard the loss was, I think, less than two per cent.

In another yard of over 125 colonies I thought I would experiment, and left several colonies upon eleven combs, and lost nearly all of them, while the loss among the rest was very trifling—perhaps one or two. In still another yard I experimented upon a larger scale. Most of the colonies in this yard were under size, and I left the most of them upon seven or eight combs, when they should have been placed upon from four to seven, and I lost not far from 25 per cent of them.

I made these experiments because I thought I had been running to the other extreme, and to learn if possible the golden mean.

Middlebury, Vt.

INDOOR AND OUTDOOR WINTERING IN YORK STATE.

ADVANTAGES OF SHALLOW FRAMES FOR INDOOR WINTERING; RAISING THE HIVE UP FROM THE BOTTOM-BOARD BY A SHALLOW RIM.

Friedemann Greiner.

In wintering my bees I practice both methods; viz., wintering on summer stands in permanently packed hives (chaff hives), and cellar wintering in light single-walled hives. I am generally successful with both of these methods. My way is as follows:

When I remove the surplus-cases after the honey season is over I ascertain whether there is a sufficient quantity of honey in each hive. I do not consider it necessary nor advisable to

weigh or lift each frame in each hive, as Mr. Doolittle recommends. I simply spread the brood-nest in the center, to see how far down there is any honey. I can then judge whether a colony has honey enough or not. I almost always find some colonies extremely heavy, a few too light. I make a note of this, and seize the first opportunity to make an exchange between the light and heavy colonies. I also satisfy myself at the time of removing the last surplus-cases as to the presence of a queen. Capped brood at this time I take as a sufficient indication, and I can almost always see whether or not there is brood when I spread apart the central frames, as already explained in the case of ascertaining the amount of honey.

My hives which I use for outdoor wintering are packed with from 2 to 3 inches of chaff, moss, or sawdust. I own up that I am one of the old fogies, using a honey-board. This I remove when preparing for winter; put on a quilt instead, with a 5 to 6 inch cushion over the same; a Hill device I do not use. After my hives are "fixed" up, say by Nov. 1, I scarcely look at them until the following spring. I give full entrance ($\frac{3}{8}$ x 8 inches), and like the idea of setting up a short piece of board, leaning against the hive, protecting and shading the entrance.

The cellar which my bees in single-walled hives are wintered in is under my dwelling-house. This cellar is also used for storing potatoes, vegetables, and provision in general, but is partitioned off and made perfectly dark. The sash of the only window is covered with tarred paper, and hinged to the casing so I may open it or shut it by means of a string without entering the bee-room itself. The window-casing is covered with screen, inside and out, and the space between (10 inches) filled with fine hay. A thermometer is kept in the bee-room, and arranged so I may read off the temperature by opening a slide from the other part of the cellar.

After the middle of November, on a cool, dry day, my bees are taken in and stacked up four high on a foundation of scantling. I leave on the bottom-boards and honey-boards; but I like the idea of placing a two-inch rim, size of hive, between bottom and body, except in case where a very shallow frame in a single story is used.

Ordinary cellars do not maintain an even temperature; at least, my cellar does not; so I keep close watch, especially during changeable weather. By opening or shutting the window I can regulate the temperature pretty well—enough so that I have been able to winter my bees in this cellar for ten years with very little loss. About April 10, or when the bees wintered out of doors begin to bring pollen, I take all colonies from the cellar, and do this during the night. In placing them on their stands I pay

no attention to their former location the fall previous.

Now as to what I have learned during the last few years in regard to the matter of wintering:

Upward ventilation through five or six inches of chaff has proved much better than a sealed cover for outdoor wintering.

A very shallow frame (half-story frame) in a single story has given me best results in the cellar, which I explain as follows: In so shallow a brood-nest the cluster of bees touches top and bottom. Any bees, when about to die, can not accumulate, but leave the hive and die on the cellar-bottom, which should be covered from time to time anew with dry sawdust. Purer air is thus secured to the colonies, and combs remain sweet. I have never as yet found a moldy comb in these shallow hives.

For ten years I have been a good deal like the man trying to teach his cow or his horse to live without eating, but failing, just as he thought the feat about accomplished. That is, I have been trying to winter my bees without sufficient protection, but I nearly always failed. I can look back upon the second decade of my bee-keeping career with greater satisfaction; for my loss has seldom amounted to over five per cent in one year during this time.

After writing my article so far I find I have omitted to say any thing about the character of the winter food. Of course, I should want to winter my bees upon wholesome food. But how can we tell beforehand any thing about it? There is the rub! Honey-dew might be extracted, and syrup fed instead; but who can know beforehand that honey-dew would prove fatal in its effect as a winter food? The only time we ever had much honey-dew in our hives, our bees, left out on summer stands and those taken out in February, or as soon as they became uneasy, wintered par excellence. To anticipate the true character of the stored food, I imagine, is a difficult matter. As Dr. Miller often says, I don't know any thing about it; therefore I leave this factor entirely out of my calculation. If I were situated in a different location I might do differently.

Naples, N. Y., Oct. 15.

WINTER CASES.

DOUBLE BROOD-CHAMBER PREFERRED; IMPORTANCE OF SPACE SECURED BY A RIM UNDER THE BROOD-FRAMES FOR OUTDOOR WINTERING; THE TENEMENT PLAN OF PACKING.

By J. A. Green.

I am asked to let the readers of GLEANINGS know how I winter my bees, and what I have learned during the past three or four years that is of practical benefit along that line.

My method of wintering has been given in these pages before, but it will do no harm to repeat it. As early as possible after the honey-harvest is over (which in this locality often continues good up to the 20th of September), I see that each colony has a sufficient number of bees, and honey enough to last until honey may be gathered again. As to the first point, I do not consider an extra-large colony more likely to winter safely than one that is a little below the average in numbers, but otherwise in good condition. I consider it very important that they should have honey enough so that I may feel perfectly sure that no more will be needed until it can be gathered from the flowers.

After my bees are prepared for winter I do not expect to do any thing more to them, as long as they are apparently in a normal condition, until the approach of the next honey season makes it necessary to prepare them for it. As this means that they are to be left undisturbed for nearly or quite six months, an abundance of food is necessary. A colony will get through the winter on 20 lbs. of honey, often less; but it is liable to need help to get it into good condition for the harvest. So if a colony has less than 30 lbs. I mark it as likely to need attention in the spring.

I use the double-brood-chamber hive, made almost the same as the Heddon hive, and consider that the bees winter in it rather better, on an average, than in the single-story hive.

Each hive is raised from the bottom-board by putting under it a frame or rim that leaves a space of about two inches between the bottom of the frames and the floor of the hive. This I consider very important. That the bees appreciate it is shown by the fact that they almost invariably cluster in this space below the frames. A colony in a solid cluster this way, with plenty of honey within reach, is in an ideal condition for wintering.

The rim which raises the hive is so made that the usual entrance next to the bottom-board is closed, and an entrance left at the top of the rim. This entrance is $\frac{3}{8}$ x 12 inches, giving an abundance of ventilation. The sides extend four or five inches beyond the front of the hive, and are covered there, making a "bridge" which supports the outside packing and forms a vestibule to the entrance, protecting it to a considerable extent from the wind.

Dead bees which fall from the cluster drop entirely free from the frames, and there is no chance of the entrance becoming clogged with dead bees or ice. I make these rims of lath or other thin lumber. The only drawback to their use, aside from the slight expense and trouble, is that they must be removed before the bees get too strong in the spring, or they will fill up the space with comb. This some-

times makes it necessary to unpack the bees sooner than I should otherwise like.

I believe thoroughly that outside packing pays. My favorite method is to pack four colonies together. During the summer the hives are in groups of four, two facing east and two west. They are far enough apart to allow of working all around them easily; but on the approach of winter they are moved close together. A large box (or, rather, a rim) without top or bottom is then placed around them, the ends resting on the "bridges" over the entrance so that the bees may fly undisturbed, the sides resting on the ground. The sides and ends are separate panels, which are lightly tacked together at the corners, just before they are set into place. The four hives are now about two inches from each other, with a space of three or four inches all around the outside, and six or eight inches over the top.

I generally use planer-shavings for packing. Leaves of the softer varieties are good; but I would not use chaff or straw, as the grain they are apt to contain is an attraction for mice. The whole is covered with a good roof—one that will not leak or blow off.

The hives I use are covered with a flat board cover, and this is left just as it was during the summer.

Several years ago I wrote several articles in favor of sealed covers for wintering—a method which was then gaining favor rapidly. For some reason, which I could never understand, the tide turned. Led by the editor of *GLEANINGS*, many of the new converts recanted, turned right-about-face, and declared that they wanted no more sealed covers. As I remained silent, and made no further argument or reply to those who criticised the methods I had advocated, some of my friends thought that I too had concluded that I had been mistaken. Not so. I am as firmly convinced as ever that sealed covers, with proper protection, is the proper method of wintering. Argument seemed useless; but when so many went back to porous covering and absorbents, I tried the experiment over, using quilts on a number of hives in order to be sure I was not mistaken. The result satisfied me that, the nearer I could come to a perfectly tight cover to the hive, the better. In practice it is difficult to always have perfectly sealed covers, as I often have to remove covers so late that the bees have no chance to seal them down again as perfectly as I should like; but I use every effort to have the top of the hive as tight as possible.

Single hives are packed in the same way, using a box that is at least three inches larger each way, and six inches higher than the hive.

For a roof, a sheet of corrugated iron is laid over the top and weighted down.

I am convinced that many who have tried outer cases for packing have not been as suc-

cessful as they might have been, because the cases they used did not have room for enough packing, especially on top.

Last winter, for experiment and comparison I left several colonies unprotected, and protected others thoroughly on top, but left sides of hives unprotected. The former all died. The latter were alive in the spring, but so weak that they soon dwindled away. The mortality among those packed was not over ten per cent.

Ottawa, Ill., Oct. 30.

WINTERING IN WISCONSIN.

THREE IMPORTANT CONDITIONS.

By C. A. Hatch.

Three things are of first importance to winter bees well: 1. Good stores; 2. Good bees; 3. Proper temperature. Given these three essential conditions, bees will winter with many conditions that otherwise are unfavorable. Like a man of good constitution, great vitality, and good health, the amount of abuse he will stand and be none the worse is surprising. Just so with bees. Give them the three things named above, or even the first two, stores and bees of the right kind, and they will live under many adverse circumstances. But take away either of these two, and no amount of coddling and fussing will make their wintering a success.

The sooner we get to recognize what are the essentials, the better it will be for us; for a great amount of effort has been directed to things that are of only secondary importance. Ventilation is of importance, but not first; so is moisture: but both, as affecting temperature, become all-important.

GOOD STORES.

Honey from flowers of any kind, if well ripened and sealed over, is all right, although there seems to be a difference in these, more on the account of the liability of being something which is *not* honey being stored with it than from the honey itself. Any thing that would cause the honey to ferment, as juice from any kind of fruit, sugar-cane, or any thing of the kind, seems to be detrimental. Honey-dew in our State, no matter what others say, is very poor winter food. The very best stores yet found is wild-bergamot honey.

That the winter food should be sealed is not essential, if it be thick; but sealing helps it about absorbing moisture and taking in ferment germs.

CHANGING STORES.

If our bees get improper food into the hive it becomes a serious matter to change this for the proper kind, for experience has taught that there is a right and a wrong way to do even this. Changing the frames of poor for frames of good honey is all right if thoroughly done early enough in the season so that the bees can

arrange themselves for winter; but to wait until almost time to put them away for winter, and then take out a few outside frames and put in the others does but small good, for the bees have arranged a winter supply around the brood-nest, and it is a chance if your good honey is touched at all, for the bees will be dead long before they get to it. Then why not put it in the middle? By this you have divided the bees and changed all their winter arrangements. A neighbor of mine last fall, when our bees all got much honey-dew, took all the honey he could get from 80 colonies, and had to leave 40 with the honey unchanged. In the spring, those undisturbed came out as well as the others, although the best of basswood was substituted for the honey-dew. From this we draw the inference that the only practical way is to remove the honey next to the brood-nest, put in empty frames, and then feed with some kind of a feeder. This gives them a chance to arrange the food in what *they* call the right place. Then arrangement of stores is important. Yes, but not essential. If proper temperature be given, the bees will go to the honey if it is in the hive, whether it is above or at the side or end of the cluster. I have experimented along this line with frames from 5 in. deep up to 19 in.; and, other conditions being right, it made no difference. Sugar stores are all right for winter if fed early, and good sugar is used.

GOOD BEES.

The next essential does not refer to any race or mixture of races, or any strain, but simply means bees of the proper age, not too old nor too young. If they are old enough to have a good fly before cold weather sets in, they are old enough and none too young. On the other hand, if they are hatched too late to get this flight I would call them too young for the best results; and if breeding stops early in September, most of the bees will be too old to come out alive May 1st, which they must do to have their places filled by new recruits. In case nature does not furnish enough bloom to keep breeding going until Oct. 1st, feeding would be essential; and this should be done with the best of honey or granulated sugar; for all not used in breeding goes to supply winter feed, and it would be like compelling your cows to eat moldy hay to put poor food before your bees.

TEMPERATURE.

This in our climate is best controlled in an underground repository which should be well under ground, and controllable at a temperature of 40 to 45 degrees. The cellar should have ventilation, controllable, but no draft; best obtained by a pipe connecting with a chimney or stove above, in which a fire is kept most of the time. Details of arrangements in cellar may be considered, such as

VENTILATION OF HIVES, ETC.

Top or bottom ventilation of hives has been a vexed question with me, and I am not so sure on this point now, but have come to this conclusion: if much bottom ventilation is given, but little at top is needed; and if much at top, but little at the bottom. I am inclined to large opening at the bottom and none at the top, for the reason that it seems to preserve the natural heat of the cluster, and at the same time allow all dead bees to fall away from the combs, and thereby avoid foul air and contamination by mold and decay. I have practiced leaving the bottom-boards off entirely, and setting the hives so as to have a space of about 8 in. wide the whole length of the hive clear, and leave the quilt and cover on; also the honey-board if the hive had one on in the summer.

TIME TO PUT INTO THE CELLAR.

The 20th of November my bees are put into their winter quarters, as a rule, and remain there undisturbed until April 1st to 10th.

Ithaca, Wis., Oct. 10.

INDOOR WINTERING IN YORK STATE.

VENTILATION AN ESSENTIAL; HIVE AND CELLAR VENTILATION; A VARIATION IN TEMPERATURE BENEFICIAL; HIBERNATION.

By P. H. Elwood.

It is now too late to make preparations for winter, and I write this assuming that such preparations have already been made. Strong colonies, with plenty of good honey or its equivalent in sugar syrup, are the bases of all successful wintering. I know weaker colonies sometimes pull through finely; but as a rule they do not. The same with colonies rather short in stores. Not only do they need enough to carry them through the winter, but enough to last through the spring. More honey is consumed through the spring than through the winter. The stores should also be so located that the bees will not be compelled to change their brood-nest during cold weather.

In this locality bees are nearly all wintered in cellars. Bees often winter as well out of doors, and occasionally, in an open winter, even better; but now and then we have a winter so severe with steady cold so long continued that a large proportion of the colonies out of doors perish.

For indoor wintering the conditions of most importance are temperature and ventilation. As it is so difficult to control temperature in repositories above ground, such have been quite generally abandoned. The temperature named by different writers varies from 38° to 50°; but for the average cellar, 42° to 45° is probably about right. In a very dry cellar the temperature of 38° to 42° may do very well; while in a very damp cellar the temperature

might be raised to 45° or 50°, and yet be no warmer.

The ventilation of the hives also makes a difference as to the temperature of the cellar; for with upward ventilation to the hive, a higher temperature may be maintained in the cellar.

The purity of the air also makes a difference, for the bees will remain quiet longer in a high temperature if the air is pure. Whatever the other conditions, all agree that a freezing temperature is too low. Far better to let bees remain on their summer stands unprotected than subject them to this. In the damp atmosphere of a cellar this low degree is apt to cause a dangerous condensation of moisture upon the combs of honey.

Ventilation is necessary, both to control the temperature and to maintain the purity of the air. The heat of the earth is the main dependence for controlling the temperature of cellars; but with a cellar fully stocked with bees, recourse must be had to ventilation. At no time, no matter how cold, can we close all ventilation to our cellar without causing a dangerous rise in temperature. Again, when we have a very warm spell of weather we find it necessary to throw open all ventilators at night, including doors, and partially close them in the morning. Sometimes the temperature does not fall much in the cellar; but we find the bees quieter in the morning in the pure air. Sub-earth ventilation, if well put in, is useful at such times; but with a cellar only partially stocked with bees it can be dispensed with.

Ventilation for maintaining the purity of the atmosphere has been a disputed point; but during the last few years it has been so generally accepted by intelligent bee-keepers that but few remain to dispute it. The necessity for such ventilation was abundantly proven many years ago; but so many had wintered successfully without any provision for change of air that it was thought some mistake had been made by the claimants. It is now generally admitted that the mistake was made by those who did not admit the claim, in overlooking the factor of natural ventilation, which, in many repositories, is abundant for the number of bees kept in them. By natural ventilation is meant the change of air taking place through the crevices and materials, such as wood, mortar, brick, and stone, of which the building may be constructed. For fuller account of natural and artificial ventilation, see *American Bee Journal*, p. 233, 1878.

During the last few years we have not gained so many new points, but have more fully established the old ones. That bees enter a state of quietude that may rightly be called hibernation is fully accepted by us. Like hibernation in many other animals, this sleep is not continuous, but at intervals the bees awake to partake of food. Prof. McLain states this interval to

be about a week with the honey-bee; but we need further observations to confirm or establish this period. We also need to look up the conditions most favorable for this awakening. My own observations lead me to believe that, when the temperature remains uniformly low for a long time, the awaking process is either delayed too long or is not complete enough, so that many bees either suffer from hunger or perish from starvation with plenty around them. That is, a variation in temperature within certain limits is better than absolute uniformity. Mr. Quinby was of the opinion that a fire in a bee-cellar every few days would be beneficial. We put our bees in the cellar with plenty of lower ventilation (about 20 inches), but the upper part of the hives is as close as carpentry and metal corners can make them. A moderate amount of upward ventilation may be better in damp cellars, or in cellars where it is difficult to keep the temperature down. Our cellar is overstocked, and we have to remove a part of our bees too early (in March). Upward ventilation might benefit us, but our hives are so constructed that we can not conveniently make the change, so we shall, instead, somewhat reduce the number of colonies put in the cellar. Spring dwindling is a part of poor wintering—the last stage. The vitality of the bee is exhausted, and it falls a prey to every wind that blows.

For fuller account of hibernation, see article on "Hibernation," republished in GLEANINGS a couple of years ago.

Starkville, N. Y., Oct. 24.

THE UP-GROUND REPOSITORY PLAN.

LOW TEMPERATURE TO START ON AND HIGHER TEMPERATURE FOR BREEDING; ARTIFICIAL HEAT AND ITS ADVANTAGE.

By H. R. Boardman.

A review of the best methods of wintering at this time, when bee-keepers are beginning to think of the long helpless sleep of their bees during the cold months of winter which are near at hand, will, no doubt, prove profitable to many who are hesitating as to what they ought to do. I will briefly review my own methods, which have been given before, and which have proved entirely successful and satisfactory.

I winter in a bee-house planned and prepared for the purpose. I have no confidence in outdoor wintering by any method that I know. I have for quite a good many years experimented in that direction by leaving some of my colonies out on the summer stands. The results are quite encouraging some seasons; then comes a cold winter, and the bees die, or winter poorly. These experiments have proven expensive to me, and I shall hereafter be satisfied to winter all of my bees inside.

Whatever preparation is to be made by way of feeding or handling should be made before the approach of cold weather. This is not as important with indoor wintering, where the bees are to be in a mild temperature, as in outdoor wintering.

The queen is the most important factor in the future success of the colony. Young queens will lay, and keep up brood-rearing later, and begin earlier in the spring, than old ones, thus furnishing young bees for winter, and also building up earlier in the spring, with less liability of queenless colonies; but colonies with such queens will consume more stores. Late queens have these characteristics to recommend them.

I set my bees into the bee-house as near the 15th of November as circumstances will permit. At about this time I watch for a cool day when the temperature is below 32°, and falling, as the bees then handle much better than when the temperature is rising. This may seem a small matter; but it is quite important, and is well worth attending to.

I have a system of locating that enables me to put each colony back upon the stand from which it was taken, when they are set out again, with very little trouble.

It is a system entirely my own, and one I have used in all my work with bees almost ever since I began my experience in bee-keeping. It does away with tags or numbers or marks on the hive except when the hive is removed from the stand. My hives are arranged in rows. The rows are lettered in alphabetical order. The stands, and not the hives, are numbered in the rows. When I am all ready to set the bees into the bee-house, with a piece of white chalk I mark each hive to correspond with the stand upon which it rests; thus:

A 1	A 2	A 3	A 4	A 5
B 1	B 2	B 3	B 4	B 5
C 1	C 2	C 3	C 4	C 5

and so on through the yard. I think the advantages of my system of locating will be comprehended without further comment.

My system of securing abundant lower ventilation has been described and illustrated so many times that I will only call attention to it briefly. It is very simple. I first place a row of covers 5 or 6 inches apart; then pick the hives up in the yard, from the bottom-board, and bring or wheel into the bee-house, on a hive-cart, and set them over the open space on the covers. This will bring the hives about the same distance apart that the covers are. Set another tier of hives on top of these in the same way, leaving the open space below directly under the hive, and so on as high as desired. After putting my bees in in

this manner, if at any time during the winter I should want to refer to any particular colony, or should want to set one or more out on the summer stands, which often happens with me, I should know just where they belonged.

After the bees are all in the bee-house I leave the doors and windows open, giving abundant ventilation and the full light of day until the weather becomes quite cold. By this means the temperature is kept well down, say below 40°. I prefer that the temperature should not be much above this until there are pretty evident signs of brood-rearing toward spring, which will be shown by increased activity of the bees.

After brood-rearing has commenced it is very important that the temperature be kept pretty well up, say 50° to 55°. A low temperature at this time, if long continued, is almost certain to produce unfavorable results. It is at this time that artificial heat plays an important part in regulating the temperature of the bee-house, which is a factor in wintering bees that I could not think of dispensing with; in fact, it grows in favor with me each year, and I would not think of constructing a bee-house without arrangements for this purpose. I never use artificial heat directly in the bee-room, but in a room adjoining. This makes the warming so gradual in the bee-rooms that the changes of temperature are almost imperceptible to the bees, and causes no disturbance.

I want the bee-repository as free from moisture as possible during the entire winter—so perfect in this respect that the stores in the hives will be kept perfectly, without mold or fermentation. This I consider important. Stores demoralized by a moist condition will surely result in an unfavorable condition of the colony in spring, which will continue to affect the bees long after they are set out.

While upon this subject I wish to call attention to the fact that bee-keepers who last winter advocated moisture as a favorable condition in the bee-house have been slow to come forward with a report of their bees after being set out, to substantiate their arguments.

After the bees have been perfectly wintered it is of great importance that they be set out on their summer stands on a warm day when they can at once take a thorough flight. Very serious damage will result from setting out when the weather is cool enough to chill the bees that fly out for the first time.

In regard to winter stores, I consider sugar much safer for that purpose than honey.

UNITING.

There is no time when colonies may be united with so little trouble as when set out of the bee-house in spring. It is unnecessary to give any attention to the queens. I unite at this time by placing one hive on top of another,

using the best combs on top, as the colony will eventually occupy the upper story. I have had both queens continue laying in such united colonies until swarming-time.

East Townsend, O., Oct. 22.

A MODEL BEE-CELLAR.

SMALL HIVES PREFERRED FOR THE CLUSTER.

By B. Taylor.

To winter bees successfully two things are positively indispensable, especially in the northern sections of our country. I regard the condition of the bees themselves as being of first importance. Next, good winter quarters. The wintering-cellar at the Forestville apiary was made by digging into a clay hill with a 30° slope, in bank-barn fashion. The walls are of solid stone 22 inches thick for 3 feet in height. The next 4 feet the wall is only 14 inches thick, leaving a jog on the inside of 8 inches. A sill 2x6 was laid on this jog, and a frame of 2x4 scantling set up even with the inside of the bottom wall, the plate being on a level with the top of the stone wall. This 4-foot-high frame was sealed on the inside with matched flooring. This leaves a space of 8 inches between the inner wooden and outer stone wall. This space was packed with dry clean pine leaves. This prevents frost from entering the cellar through the top of the wall. The floor over the cellar consists of three separate floors of matched flooring with a space of two inches between them. These two-inch spaces are filled with dry sawdust. The first and second floors were covered with tarred sheeting-paper before the sawdust was packed in. This keeps frost out from above. A common frame, four feet high, was made on top of the wall, and a first-class roof of shingles covers all. The cellar is divided into two rooms lengthwise by a board partition so one half the bees could be kept in quiet darkness while the other half was put in or out. An ante-room of 4 feet in front, with one heavy outside and an inside door through the partition into each room keeps out frost from this direction. In the center of the partition that makes the ante-room there is a brick vault from bottom to top of cellar, 4 feet square, with a door in one side. In this vault is a proper stove where a slow fire can be kept to warm up and purify the air when needed. The stove is operated from the ante-room, and does not disturb the bees. The cellar is floored with two inches of cement. There are proper means of ventilation, and the air is pure enough for a living-room. The earth is banked at sides and back end to top of wall; the entrance is level with the bee-yard outside. When the bees themselves are in right condition they winter in this cellar with great certainty. The outside foundation wall to our dwelling is

made by digging a trench 2½ feet deep, and building a wall in it to two feet above the ground. Inside of this wall, and four feet from it, is the cellar wall proper. Dirt is filled in between these two walls to the bottom of the sills. The chimney of the house starts in the center of the cellar, with a flue for ventilating. There is a cement floor three inches thick, with a complete system of underdrainage. There is a brick drain laid in a circle around the house outside, and as low as the bottom of the cellar. The drains have a proper outlet. This extra drainage was necessary because there was a stratum of clay that held water, and the cellar filled five feet deep in rainy seasons. Now it is so dry that the hoops loosen on barrels in winter, and is so warm we use an outside entrance at all seasons. I have frequently wintered from ten to sixty colonies here, and with greater success than in any other repository I ever used.

I have given these detailed descriptions to guide others; for good quarters are vital in *successful* bee-keeping. The best success I have had in preparing colonies for winter was by covering the hives with either cotton quilts similar to bed-quilts, or covers of thick soft felt paper, such as is used under carpets. The covers were held tight to the top of the hive by a frame of inch-square wood screwed down tight. There was a Hill device, or something the same, under the covers. The bees came to the top and wintered directly under and in contact with covers. Where paper was used, a square of light cotton sheeting was put under the paper to keep the bees from gnawing through. The hives were left on the bottom-boards, with an entrance ⅜ high the entire width of the hive, front and rear. They were piled up four or five high, as need demanded. They were put into the cellar about November 1st, and left undisturbed until about April 1st, when they were put on summer stands.

One of the things I have found out in recent years is, that we must have plenty of young bees to begin winter confinement with. From Dec. 1st to April 1st is five months. Bees, as a rule, entirely stop breeding here by Oct. 1st, and do not raise much brood before May 1st. This is *seven months*. I do not believe workers live much longer than this under the most favorable conditions. Bees hatched in August will be nine months old to reach May 1st. I have had the most positive proof in the last two years that they can not be made to live so long by any known skill or perfection of food or quarters. Some claim that bees live very long when idle. I do not believe that men or animals that follow nature's demands as to work shorten their lives thereby. I have observed that loafers do not live longer than the industrious who lead a just and temperate life. I expect to live an active life while I can walk,

and I do not expect to lessen the number of my days thereby.

I have found that bees keep drier, and winter better, when they cluster at the *top of the brood-nest and over their stores*. I have long believed they winter best in a small hive *crowded full of bees*, rather than in a large one in which there is much room *outside the cluster*. Such cold vacant space condenses moisture, and causes mold and bad air. I believe any live thing that was made to live in the pure open air, like bees, are injured by *damp, cold, bad air*.

I have become convinced that bees winter better with just enough always accessible honey in their hives to feed them safely until warm weather. I can keep combs of surplus stores *purer and better in a warm dry store-room* than in the vacant space in a large hive occupied by a colony of live bees.

Mr. Editor, I have, in the above thoughts on wintering, dealt more on general principles than minor details, because I believe minor matters are better understood than general principles. I have noticed that bees winter best in years of good honey crops, and when the hives are heavy with natural stores. I always had the worst luck when the colonies had to be doctored in any way. I have found all kinds of honey, and even honey-dew, when collected in a natural way by the bees, good winter food. One fall the hives were all heavy with honey-dew, and they came out in first-rate shape. I now get nearly all the white honey in sections or extracting-supers, and believe it pays better to use the dark honey for wintering and raising brood than to fuss with feeding sugar.

Who can tell why some colonies live and others die, all having the same kind of stores and quarters, and the same care?

Forestville, Minn., Oct. 16.

ANOTHER MODEL BEE-CELLAR, AND HOW CONSTRUCTED.

SUB-EARTH VENTILATORS, AND WHY THEY MAKE CELLARS DAMP; TEMPERATURE.

By S. T. Pettit.

I make it a point to have my bees in good shape, and well supplied with good stores. When I must feed I bring $8\frac{1}{2}$ wine qts. of water to a boil, then stir in 40 lbs. of sugar; and when that boils I lift it off the fire and pour in 8 lbs. of honey, and stir well. The $\frac{1}{2}$ qt. is for evaporation. I am of opinion that a good deal of loss occurs from too much water in the food. Many colonies fail to do more than just store it. My cellar is constructed in heavy clay, and a shop is built over it. The shop is very warm, and has a 5-inch floor. The cellar is so deep that the shop floor is about even with the surface of the ground. Now, as the earth is always

giving off heat, this depth is of much benefit to the bees. With a cellar so constructed, more air can be admitted, and the temperature keep right, than in one whose walls are considerably above ground, even though they be several feet thick. A brick or stone wall, however well made, can not supply heat; but the earth does, and it will pay to utilize it.

My cellar-walls, though under ground, are as nearly air-tight as can be made of stone and mortar. The wind blows pretty freely through the ground, hence the necessity.

The windows are on the break-joint principle, to admit air and exclude light. They are adjustable to suit the weather. Large curtains of open cloth are hung between the windows and the hives to distribute the in-flowing air.

About the 20th of November the bees are placed in, about 18 inches from the ground. The back end of each hive stands 3 inches higher than the front. I pry up the back ends and slip in $\frac{3}{8}$ inch bits of lath. I leave the cloth, covered with propolis, flat on top of the frames. I like it sealed down air-tight. A chaff cushion is placed on top of each hive. To keep the hives at the proper pitch, a piece of lath is laid across the lower end of each hive on top of the cushion, before placing the next hive on. The walks, to prevent crushing bees, are made of boards, across which are nailed strips $\frac{3}{8} \times 1$ inch. These strips are nailed one inch apart, with edges up. The floor is natural earth, worked down hard and smooth.

A stove is in the shop above, in which I keep a gentle fire most of the winter. With the stovepipe is connected a 6-in. pipe, which extends to within 8 in. of the cellar-floor. A damper is in this pipe. Now, in sharp weather the upward rush is pretty brisk; but with the combined heat of the bees and earth the temperature keeps at about 40 in steady cold weather.

I wish to point out that, although the air may be saturated with moisture at 40°, when it enters the hives and is warmed to the temperature of the bees it becomes thirsty, and takes up the moisture thrown off by the bees, and thus they are kept dry and healthy. This is one reason why the temperature in a damp cellar should be kept down to about 40°; and, more than that, this difference of temperature of the cellar air and the hive air, if the bees are fixed up right, produces automatic ventilation through the hives, and the bees are not obliged to fan to drive out foul air; and that being the case, and their conditions and surroundings being just right for their happiness and supreme comfort, they will become so quiet that not a flutter nor hum can be heard from most of the hives.

I have learned during the past few years, 1. That bees that hum all winter run down in spring more or less, while those that are win-

tered right boom right along, and generally gather a surplus of spring honey, and are ready for any flow that may come. I do some visiting among bee-keepers. 2. That sub-earth ventilators as usually constructed make the cellar very wet, and that they are of but little if any use made of tile. 3. That damp cellars may be made dry by admitting no air that comes in, in any way, through the ground, either through the walls or under them, and admitting air only from above ground. 4. That it is a mistake to leave the bees in the cellar late in spring if they are at all uneasy. If a fine day comes the first week in April, out go my bees. 5. That a good warm cushion on top is all the packing necessary in spring. 6. That bees do just as well with entrances to the north as any other direction, provided there are good wind-breaks to the west and north. 7. That hive air will be purer and dryer, and the bees warmer and more comfortable, with liberal entrances than with too small entrances. Also, there will be less robbing and less fighting among querulous Italians of the same hive; entrances from 3 to 6 inches in early spring, and $\frac{3}{4}$ high. Querulous Italians must have more to keep them at peace among themselves. 8. That bees winter better and do better in spring in small hives than large ones. 9. That bees winter better on 9-in. than on 12-in. frames. 10. That cards more than ten inches deep should have a hole or two made a little above the center of all the combs.

Belmont, Ont., Can., Oct. 19.

[It is very encouraging to note, as one reads over this series of very interesting articles, that the "wintering problem" is not such a serious one as it formerly was; indeed, it may almost be said to be solved if we may judge from the unbroken records of success of not alone the few who have given us their views, but of the hundreds of bee-keepers all over our north lands where winter's rigors hold full sway.

Not all of the writers above follow exactly the same methods; but it is significant that they agree on all important essentials.

These, primarily, seem to be—good bees of right age; good food, and suitable protection. As to food, granulated-sugar syrup fed early enough to be well ripened seems to hold the first place; after that, good light honey. For protection all are agreed that outdoor colonies should be packed in double-walled hives, and that those indoors should be in a frost-proof room, generally under ground, darkened, and capable of good ventilation. It seems to be easier to control temperature in the cellars than in the upground structures.

As to ventilators for repositories: The sub-earth do not receive much indorsement. Mr. Pettit holds that the fresh air admitted through underground tubes acquires an undue amount of dampness, and is, therefore, detrimental. The ventilation that is preferred seems to be from doors and windows that may be opened at intervals at night.

It is significant, too, that the ventilation of the hive should be from the bottom, either by leaving the bottom-board off entirely and piling the hives over the spaces of those below, or of raising the hive up on a rim to give air-spaces

under the frames. So far, then, indoor colonies should have tight covers.

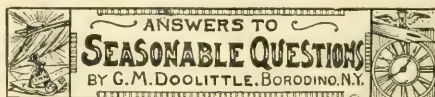
When it comes to the outdoor bees, there is a divided opinion as to the desirability of a sealed cover.

All put their colonies into the cellar about the middle of this month, or about the time this journal reaches its readers.

As to outdoor packing, planer-shavings seem to receive a prominent recognition; and perhaps I might say in this connection that we now prefer them to chaff. They keep dryer, and are more easily obtained.

Hibernation! what a bone of contention that used to be among the bee-brethren! After it had been harped upon and harped upon again, until it was hoped the word would never see the light again on the pages of a bee-journal, it was dropped, but not without some of the brethren feeling that they had been deprived of a right to the "last say." But as Mr. Elwood has introduced it in this number he has shorn it of all its old "non-swallowable" features (excuse the coinage), and left it where there is no chance for argument. Either we have advanced in our knowledge and practice of wintering, or else he has explained it so that we understand the term better when applied to bees. At all events, we can agree with him, I think.

There, now, it just occurs to me that I had asked Dr. Miller to review these articles in our next issue—to digest them, as it were, and give us the solid meat. So I did; but, oh my! I haven't begun to review them or sum up the good things. Even if I have, I may have seen through a glass darkly. Well, doctor, we will suspend judgment until we see through your eyes, after which the subject will be open for further discussion if thought necessary.—ED.]



FEEDING BACK; AN INTERESTING SERIES OF EXPERIMENTS.

Question.—I saw a little while ago, in one of my papers, something about "feeding back." Can you tell us in GLEANINGS what is meant by this, and is there any profit in it to the person who practices it?

Answer.—Undoubtedly, every one of the older readers of GLEANINGS knows what is meant by "feeding back;" but in order that the younger readers and our questioner may know just what this term means I will say that feeding back is the feeding of extracted honey, taken during the honey harvest, back to the same colony from which it was taken, or any others if so preferred, after the harvest is past, for the purpose of having said honey stored in sections, the colony at this time having been fixed for section honey. The object of such a procedure is to get an article of less price converted into one which brings a greater price. By using the extractor during the honey-flow, from one-third to one-half more honey is obtained than would have been secured had the colony been worked for section honey; but said honey does

not bring more than about half the price comb honey in the sections does. From the above it will be seen that, if a way could be devised whereby the greater quantity of extracted honey could be gotten into the same amount of comb honey, a great gain could be made to the apiarist. This idea has caused much excitement in the past, and quite a few of to-day are still trying it. I know of no better way to illustrate what I wish to say than to give some of my experiments conducted during the past.

Some eighteen or twenty years ago the first comb foundation of any amount was sent out; and as the bees accepted it readily I thought here was a chance to make a profitable business by extracting my honey during the flow of white honey, and feeding the same back to the bees later on. By the use of foundation, much could be saved the bees by way of comb-building. Accordingly, after the harvest of white honey was over, I prepared three colonies that were strong in numbers in this wise: After contracting the brood-nest so that only combs full of brood remained, the first was given 28 two-pound sections (as that was the size I then used), filled with foundation, together with four sections filled with comb, as bait sections. The second was given 21 sections, from one-half to two-thirds full, for the bees to finish up, the 21 weighing, when put on the hive, 35 pounds. The third was given 21 sections with only starters in them, the same being a triangular piece of comb, whose length was two inches on each side. Each colony was fed all they would carry, and a record kept of each. The first feed, each took 15 lbs.; and, soon after, those having the sections two-thirds full began lengthening the cells and storing this fed honey; and when they were completed ready for market, I had fed 42 pounds of extracted honey. Upon weighing the sections again, I found they weighed 47½ lbs.; so I had fed 42 lbs. to make a gain of 12½ lbs. in the sections.

Thinking that, perhaps, they would do better on a second lot, I immediately put on 21 more, weighing 34 lbs., and fed 39 lbs. to get them finished. These were not filled so full, and weighed only 46 lbs. when finished. So I fed 39 lbs. this time to make a gain of 12 lbs. in the sections, the second trial. No. 1, with the foundation, were fed till I had given them 134 lbs., when I took the sections off, having 22 finished, which weighed 49½ lbs., and 8 unfinished, weighing 13 lbs., so I had 62½ lbs. gross weight in return for 134 lbs. fed.

I find by my diary, from which the above is taken, that the experiments with No. 3 were never completed. After I had fed them 50 lbs., or thereabouts, they went to building comb quite nicely; but it soon seemed to become an old story, and after a while they simply lived out of the feed-dish, and did nothing else.

Later on the papers gave out that, to succeed

in this feeding-back process, the honey must be thinned to about the consistency of the nectar coming from the fields, so I tried this, and have tried, many times since, experiments similar to the above, varying them as new ideas were suggested in the papers, or came to me from my own brain, but always with about the same results as given above. In all these feeding operations I have ascertained this fact, that bees fed in excess of what they consume in feeding the brood become idle, as far as field work is concerned, simply living out of the feeder, not bringing in an ounce from the fields, while those not fed will generally get a living, and in some instances make a small gain in their stores. If fed when honey is plentiful in the fields, they will store no faster out of the feeder than others not fed will from the fields; while those storing from the fields work in the sections with double the energy which those do which are being fed.

The experiments given above prove either that I have not "caught on to the matter" or that the doctrine of "feeding back" is a fallacy; and, so far as my experiments go, answers the questioner in the negative.

Another thing is proven by these experiments, which is, that the stories going the rounds of the papers every little while about comb honey being made by feeding glucose or other sweets are merely newspaper canards; for no one, at present prices, can make it profitable to raise comb honey other than by the good old way of having the bees bring in the honey from the fields; and no one is foolish enough to go to the trouble and expense of feeding sweets to produce comb honey unless there is some dollar-and-cent profit in it. People who start such stories, to the injury of a legitimate business, would do well to know something of the nature and habits of the bees, before putting sensational stories before the too credulous public as facts.

[These experiments, especially from the hand of Doolittle, are interesting and valuable. If our friend D. has ever given them before in print in just this way I was not aware of it. It is worthy of note in this connection, that a good many other careful experimenters have come to about the same conclusion; viz., that feeding back doesn't pay. I know there are some who think it can be made profitable, but I have often wondered if they took account of all the costs.

If feeding back thinned honey is not a paying operation, would the feeding of *sugar* syrup be any more so? If that is true, then sugar-syrup comb honey would not be produced to any great extent before it would put the producer of it in a bad plight financially. In other words, the product would die its own natural death. If there is any sugar honey on the market anywhere in this country, I am not aware of its existence. If it is to be assumed that it would be sold under its real name, then it certainly is not advertised or quoted; and why? Perhaps because it can not compete with natural honey from flowers.—Ed.]



SWEET CLOVER: WHERE IT GROWS; NOT A NOXIOUS WEED.

Dr. Miller:—Will you please give in GLEANINGS the season of sweet-clover bloom? I think of putting in a field if bloom suits, as my Belgian hares could use the hay to a T. Would I have a stand if I sowed the seed in March on top of bare ground, like buckwheat stubble? I understand it grows easily. W. W. K.

Pottstown, Pa., Oct. 14.

Dr. Miller replies:

I don't know just when sweet clover commences to bloom, but it's some time after the beginning of white clover—perhaps a month later. This year it was at its best about the middle of July, but that was unusually early. It continued to bloom till the weather was too cold for bees to fly. The first frosts that kill all the tenderer plants seem to have no effect on sweet clover, and the bees can be seen working on it after the weather becomes freezing cold, providing a warm day comes.

I've no doubt it would come all right if sown in March. It grows very easily where you don't want it to grow, and will do well in very hard ground; but I've known it to fail of a catch in very carefully prepared ground. It doesn't seem to do as well usually on soft ground, but perhaps that's because it is sown too shallow. I've seen some fine growths on soft ground where the seed was plowed in. A little patch of that kind on my own ground would make good mowing in the latter half of October. I've just been out and found one stalk that measured 29 inches. But then I've found another patch nearly as good on very hard ground. If sowed shallow on soft ground it may heave in winter. Stamped in on the roadside it will stand the severest winter. If you sow on buckwheat stubble in March, merely letting the seed lie on the surface without covering at all, I don't believe much of it will come. Scratch it in or else plow it in.

C. C. MILLER.

[Sweet clover, it is true, will grow where you don't want it to; but at the same time it is not a noxious weed in the ordinary sense of the term. Again, it won't grow where you want it, especially on the better soils. It seeks dry waste places in the hard clay along the roadsides and railroads—places where nothing else would or could possibly grow. If, however, instead of seeking such places it sought out the best of our farms, and if, too, it were hard to eradicate, we might call it a noxious weed.]

With us it begins blooming just about as basswood ceases, and continues until a couple of weeks before frost. Along the latter part of July and first part of August it often yields just enough honey to be perceptible in the hives, and enough to keep robbers kind o' half

way decent during our queen-rearing operations.

The plant is destined to take a much more prominent place among our honey-plants—the more so as it is occupying otherwise waste lands, and comes after the regular honey-flows. Farmers are slowly beginning to learn that stock will eat it, and this will serve to break down their old prejudice against it.—ED.]

OLD FOUNDATION IN OR OUT OF THE BOX READILY ACCEPTED BY THE BEES.

Ed. Gleanings:—In Oct. 15th issue you ask for experience from readers in the line of using foundation the second year with exposure to air, as suggested by the zigzagging of the bees of Bro. Israel, which he calls cross-eyed bees. They must have been emulating the course of the children of Israel in entering the promised land.

I remember of using, several years ago, quite a quantity of thin section foundation the second year. Part of it had been kept in the bulk as I received it, and part had remained in the sections over winter. If I forget not, I had some of it as narrow starters on brood-frames over winter. Part of it was "tissue" foundation, from W. W. Bliss, of Duarte, Los Angeles Co., and was well named, from its pliability, both the first and second seasons, even at low temperatures, where other foundation would break. Part of it was very brittle and glassy, so that I had to be careful in using it.

My bees at that time were Cyprians, pure, and hybrids; and, while cross-hearted in the extreme, they evidently must have been straight-eyed, for they pulled out the foundation all right and built things true in every section, regardless of the condition of the foundation.

CLOSED-END FRAME PREFERRED, AND WHY.

I can not but say a word regarding your frame-spacers—see same number of GLEANINGS. I like the closed end frame for a self-spacing frame. My preference is for Alley's Bay State hive, not patented, or some modification of it, as I am not sure that the hives I have made and used are modeled accurately after it. I believe it to be the best hive in use. The Aspinwall ought to be a very good one. I have found closed-end frames, lifted out and replaced from above, to be remarkably easy to handle. They kill fewer bees; they are handy to put into place; they have been a real delight to me. There is no need of trouble with propolis. If one only gets the knack (or, as F. Thompson says, the "kink" of handling them, they are easily operated, and there is no awkward situation in their use that I have not found to be worse duplicated in the ordinary narrow hanging frame. A. NORTON.

Monterey, Cal., Oct. 28.

[Your experience confirms that of Dr. Miller and others. It looks now as if all old foundation were perfectly good, whether kept in boxes or in sections exposed to the air. Friend Isra-

el's bees must have been cross-eyed for other reasons.

As to the closed-end frames, there are many things in their favor; and as between them and Hoffman frames I don't think I should have much choice. We adopted the Hoffman because they were better adapted to the hives generally in use. The Hetherington Quinby is one of the best closed-end-frame hives in use—perhaps the best. I know it is used extensively, and is easily handled.—Ed.]

OLD FOUNDATION IN SECTIONS ALL RIGHT.

In a footnote to an article by J. P. Israel, on pages 771 and 772, you ask for experience in regard to old foundation. I have taken about 400 pounds of nice amber comb honey from 20 stands of bees (of mixed breed) this fall, and it was all stored on foundation that had been in the sections and stored supers for three years, and there was not a poor comb in the lot except two or three, which were fastened to the divider. I use Heddon supers.

Lacota, Mich.

E. A. MALLORY.

[These are just the kind of reports we want. Let's have lots of them, giving actual facts. It is proper to remark right here that friend Mallory's experience agrees substantially with what Dr. Miller recently said in a Straw.—Ed.]

CROSS BEES; HOW BURNING OLD HIVES AND BROOD-FRAMES STIRS THEM UP.

In reading your A B C book I have not noticed any precautions against burning wood with bee-gum or wax on. A few days ago I noticed that our bees were unusually cross, and I couldn't account for it. They would fly at anybody anywhere near. I couldn't even stay around to watch them. Upon inquiry I found that my brother had started the fire that morning with kindling-wood that had more or less wax and bee-gum on it. Father says that, in the East, when he used to hunt bee-trees, by rubbing wax between two hot stones he could draw bees from all around the country. Among some friends who came to see us were some children, who, after being here a few days, thought they would like to have a bonfire. I told them all right, only to be careful not to put any thing on that had wax or bee-gum on it into the fire. Presently I noticed that the bees were after them in good earnest, and I had to go to the house myself to keep from getting stung. One of the children got quite badly disfigured after they had been chased into the barn several times. On asking them what they started their fire with I found that they had used the shavings off from old brood-frames, which I had lately cleaned. Burning any thing of this kind seems to bring robber-bees around more effectually than any thing else I know of. The scent of burning beeswax does not seem to limit itself to any locality. If we have any thing of this kind to burn we wait till night comes on. Doubtless, burning old hives to destroy foul brood, or using them for kindling-wood, as recommended in the A B C, can be done with

perfect safety if the apiary is not near the spot. Fountain, Col.

J. W. CROUCH.

[Yes, it is true that the burning of parts of hives smeared with propolis and wax will make bees cross, especially if they have been in the habit of robbing. Nothing, I believe, is said concerning this except under "Bee-Hunting," where it is directed to make a smudge, to call the bees in the woods, by burning old comb. I will call more particular attention to this under "Robbing," in the next edition.—Ed.]

AN APPEAL TO THE BEE-KEEPERS OF WISCONSIN.

Some of you have seen the report of N. E. France, in GLEANINGS for June 1, regarding the efforts that were made by the Southwestern Wisconsin and the Wisconsin State Bee-keepers' Associations to get the passage of a foul-brood law, providing a foul-brood inspector for Wisconsin. Mr. France expended \$25 in railroad fare and expenses while working to get the bill passed. The bill as you know was lost; but we as bee-keepers feel that we must not give up until we have accomplished our purpose of getting a law for our State similar to the Canadian law. We must have money with which to pay the expenses of Mr. France, and for a fund to provide for future expenses in pushing this matter through the legislature. We therefore appeal to every bee-keeper and supply-dealer in our State, or interested therein, to send contributions for this purpose to N. E. France, treasurer of the Wisconsin State Bee-keepers' Association, Platteville, Wis., on or before Jan. 1, 1896; and if there are any who are absolutely unable to give us financial support we ask you to write a letter to Mr. France, showing your interest and desire to have this law passed, which is of such importance to protect our chosen pursuit.

F. WILCOX,

Pres. Wis. State Bee-keepers' Ass'n.

H. LATHROP,

Sec. Wis. State Bee-keepers' Ass'n.

N. E. FRANCE,

Pres. S. W. Wis. Bee-keepers' Ass'n.

M. M. RICE,

Sec. S. W. Wis. Bee-keepers' Ass'n.

A GOOD REPORT AND A KIND WORD.

Mr. Root:—Our bee season is over; and as it has been a successful one I thought a few lines would not be out of place, so I write you. My bees, spring count, numbered 34; extracted 13,200 lbs. of honey, and increased my apiary to 90. Of course, to some of you old and experienced bee-keepers this may be under the average, in some localities at least. I am only beginning in the business; have handled the frisky little things 15 years, but it does my heart good whenever I hear them humming. I am very much interested in GLEANINGS, also in the hive discussion; also your lean-beef diet. But I think most of your talks on Christ. If he be for us, who can be against us?

San Pasqual, Cal., Nov. 1. J. A. BOYER.

A CORRECTION.

It seems from my article in Nov. 1st GLEANINGS I made an error. It should read, "50 per cent dilute" instead of 5 per cent. This is a warm day. Bees are carrying pollen as in spring.

G. W. MARTIN.

Saltsburgh, Pa., Nov. 5.

OIL OF TAR AS A PREVENTIVE OF BEE-STINGS;
HOW APPLIED.

Oil of tar and some light oil like cotton-seed oil, or sweet oil, mixed half and half, is the best, or, at any rate, the most effective, preparation to keep mosquitoes and other insects from annoying man or beast.

Hawk's Park, Fla.

W. S. HART.

[R. A. Grimshaw, of England, some years ago, put out what was known as apifuge. This was a preparation very similar to the oil of tar you refer to—at least, similar in its effects. I used it some; but as our Italians from imported stocks were so very gentle it was of little use. It was evident, though, that the bees disliked it.—Ed.]

ARTIFICIALLY RIPENED HONEY; A FINE
SAMPLE.

I send by mail a sample of honey which I desire you to test, and also get the opinion of your best experts as to what it is before you give them any information about it.

This honey was taken by me, with an extractor, from old combs in April, 1893, before a cell was capped, and so thin and watery that it was difficult to get the bees from the combs without spilling the honey. It was piped from the extractor into a galvanized-iron tank covered with common muslin, and left standing in the sun a few days, and then drawn off into five-gallon tin cans. The can from which the sample was taken has stood in an upper room, through which the pipe from a cookstove below passes. It was very white when taken, and remained so until a few months ago. I think it got moved too near the stovepipe for summer, and that has darkened it. It has never been candied. Please express opinion of sample. Why wait before extracting for it to get so thick that wired combs will break? I seldom break a comb, and never wire.

I have never had honey to sour, and always get the highest quotations. I have been in the business, in a small way, for over 40 years for myself. One year I had exclusive control of a mountain apiary belonging to another party, from which I secured 40 tons of extracted honey.

DELOS WOOD.

Santa Barbara, Cal., Oct. 24.

[Your sample came duly to hand. The honey is certainly very fine in body, color, and flavor. I never tasted any honey ripened by the bees that was better. I have before tasted artificially ripened honey that I considered the equal of any ripened by the bees. Where one is expert, has the proper appliances, a warm dry room, and a suitable climate, such honey can be made, and is just as good, and, what is of great importance, at a great saving of labor,

both of the bees in capping and of their owner in uncapping. Usually it is better for beginners to let the artificial ripening alone. Our senior editor's first experience was disastrous.—Ed.]

ANOTHER BLACK EYE FOR THE "GOLDENS."

Send me by return mail two untested Italian queens. Give us the good old-fashioned sort. I have had all I want of the goldens.

Corunna, Ind.

S. FARRINGTON.



S. S. K., Wis.—Wintering in upground repositories, as double frost-proof buildings, is the same as wintering in cellars. See "Wintering," on page 33 of our catalog; also A B C of Bee Culture.

B. H. G., Kan.—Sorghum molasses can be used for feeding bees, and perhaps will answer all right in your locality; but sugar syrup is far better. If the molasses is very thick, perhaps it had better be thinned with a little hot water before feeding. As you have the molasses on hand we would use it in preference to buying sugar for syrup.

W. H. P., Col.—Replying to your question as to whether sweet clover yields every year, I would say that no honey-plant gives nectar every season. All of them seem to have their off-years. Yet sweet clover, so far as I can remember, yields some honey every year; in fact, it seems to be more regularly visited by the bees every season than any other plant with which I am acquainted. Yes, stock eat it; but they have to learn to like it; and when they once acquire the taste for it they will sometimes browse it down in preference to any thing else. It is a biennial. It springs up the first year, but does not yield honey until the second season, and then is visited by the bees from that time until frost, when it is killed. See fuller particulars in regard to this in the A B C of Bee Culture, under the heading of "Clover."

D. S. G., Col.—The disease called foul brood attacks the larvæ in all stages of growth, and even the young pupæ in the cells of capped brood.

As to the difference between foul brood and chilled brood, the former has a yellowish-brown color and a glue-pot odor. The latter may have that color, but is more often grayish or black. The real distinctive difference is, that the grub dead from foul brood is ropy, while that from chilled brood is not. What I mean by "ropy" is that, when a toothpick is inserted into the

dead mass of an affected cell, the matured matter will adhere to the pick while it is being drawn out slowly, like spittle. The dead matter from chilled brood shows no such thing. The disease that we mention, that resembles foul brood, shows all the characteristics of foul brood with the exception that it is only slightly ropy, and it does not spread from one colony to another, but simply goes off by itself.

J. R. O., Iowa—The teaching of your scientific leader, to the effect that bees lose their instinct for storing honey, and gather only so much as will carry them through rains in certain warm portions of the country, is erroneous. There is a very slight shade of truth in it, but hardly enough to give it a passing notice. The fact is, bees gather two or three times as much honey per colony in hot climates as they do up north where the honey-flow is short and the winter season protracted. Where the honey-flow is continuous the bees will work right on continuously, and wear themselves out only to be replaced by new and younger blood that goes on doing the same thing. I said there was a slight shade of truth in the teachings of your leader. One or two have thought that bees grow a little lazy in the South; but real facts disprove it. Climatic influences, if they have any effect at all, require a much longer time to develop lazy bees. Your leader may be a scientific man; but the knowledge of a practical bee-keeper—yes, thousands of them—on this point, should have vastly more weight than any science he can bring to bear.

A. M., Ohio.—The Salisbury (or Lewis) beef-diet treatment, in brief, is this: First and foremost in importance is the washing-out of the stomach. This is done by drinking a pint of hot water an hour and a half before dinner and supper, half an hour before going to bed, and an hour before breakfast. No liquid food should be taken at any other time unless, perhaps, it is half a cup of tea after eating, and no cold liquid should be taken at any time. The patient usually starts by eating four or five ounces of beef—broiled; not fried or roasted. Mutton is allowed occasionally instead of the beef. To start on, it is better to grind the beef with an Enterprise meat-grinder. After the meat is ground (i.e., run two or three times through the machine), it should be made into a little meat patty, but not compressed, and should be held in the broiler over live coals, a gas or gasoline flame, until it is thoroughly cooked through; but be very careful not to overdo it, as it will make it indigestible. A small piece of toast, about as big as a postal card, dried clear through, is allowed. As soon the stomach can take care of it, a larger amount of meat is allowed; but care must be taken that you do not overeat at any time. If you can eat eight ounces, or even ten, and feel no inconvenience after it, all right.

For a while you will feel worse, and lose flesh; but if you persistently hold to the diet, in spite of what "good and reputable physicians" say to the contrary, you will come out all right, and your former enthusiasm and love for your work will come back.

The writer experienced just exactly the sensations you speak of; and he knows what he is talking about when he says you will feel better on the above regimen—beef and hot water.

Now in answer to your questions: It is far better to have your meals regularly; but take them irregularly if you can not take them otherwise; but it is absolutely essential that the hot water be taken at the intervals stated (viz., one and a half hours *before meals*), or it will do more harm than good. The "best round steak from the shoulder bone" was a misprint. It was corrected, but probably did not get into the number you had. The round steak should come from the flank. Yes, it is all right to wake up in the night and take a pint of hot water. At any time in the night when you can not sleep it will be found to be beneficial. During the day, drink the amount stated at the proper intervals, whether you *feel like it* or not. As to constipation, the meat diet seems to aggravate it at first, and it is often necessary to take a light physic occasionally, or, better still, wash the bowels out with an injection of warm water. We would strongly urge you to go to Dr. J. M. Lewis, Permanent Block, 176 Euclid Ave., Cleveland, if you wish to get the full benefit of the treatment.

R. H., Col.—If you are troubled with inaction of the bowels while on the beef diet we would advise you to take a mild physic, and a stronger one later on if necessary. The writer has used Park's tea to advantage; but another member of the family much prefers Garfield's, both of which you probably have in your drugstore. The success of the beef diet depends upon keeping the bowels open; but you must be careful or you will have what is known as "scouring," and the bowels may run off too freely, and it will be hard to bring them under control. This is characteristic of the meat diet for the first few weeks; but it does no harm; indeed, you will feel better after it. If you can not get either of the teas above mentioned, get about a pound of senna leaves and put a tablespoonful of them in a cup of hot water, and, when nearly cold, drink about half of it. If that does not produce action, take a little stronger dose next time. Don't get discouraged, but keep on with the diet, and, above all things, keep the bowels clear.

If you would like to have any of your friends see a specimen copy of Gleanings, make known the request on a postal, with the address or addresses, and we will, with pleasure, send them.

CALIFORNIA AS A BEE-KEEPING STATE.

THE QUESTION CAREFULLY CONSIDERED IN A
NUTSHELL BY ONE OF CALIFORNIA'S
EXTENSIVE AND PRACTICAL
BEE-KEEPERS.

[Although much has been written setting forth the real status of California bee-keeping, I know of nothing that boils the whole matter down any more carefully, conservatively, and fairly, than the paper read by J. F. McIntyre, of Fillmore, before the farmers' institute that was held in that State recently. From this paper I make a few extracts that I am sure our prospective tourists, or those who entertain an idea of some time making California their home, would do well to read carefully—not because it gives a discouraging view, but because it gives the situation fairly considered on both sides—not by one who has merely visited or been in the State for a short time, but one who has been there for years. Mr. McIntyre says:—Ed.]

I believe that the majority of bee-keepers, in Southern California at least, have their locations fully stocked with bees, and do not care either to buy or sell, or to induce others to bring more bees into their locations, which would overstock them and surely bring disaster to one or both parties occupying such field.

* * * * *

When all the conditions are favorable, California can produce the largest crop of the finest honey in the world, not excepting the famous thyme honey of Hymettus, the clover and basswood honey of the East, or the alfalfa honey of Arizona and Colorado; but during the last twenty years we have had these favorable conditions on an average only once in three years; or, to be more explicit, we have had seven good years, nine in which the bees made from ten to sixty pounds to the hive, and four years in which the bees had to be fed large quantities of honey to keep them from starving to death.

When only the large yields, ranging from 150 to 600 pounds per colony, are reported to the tenderfoot, he naturally grows enthusiastic, and concludes to endure bee-stings for a few seasons, and use the bee business as a stepping-stone to the banking business; but, oh how different in the morning, when he finds that we have such things as dry years, hot winds that destroy the prospects of a honey crop in three days, when he thought success was certain, to say nothing of the three bee-diseases—foul brood, dead brood, and bee-paralysis! and when he does secure the long-looked-for crop, and attempts to dispose of it, he finds the honey merchant and railroad company waiting for it with low prices and high freight rates. This applies to the sagebrush bee-keeping in the mountains of Southern California.

There is another section of the State, however, which is rapidly coming to the front as a bee country, and is not affected by dry years or hot winds. I refer to the alfalfa districts of Kern, Tulare, and Kings Counties. A neighbor who sold his bees to me, and moved to that section to engage in the bee business there, is well pleased with the change, and reports a profit of \$12 per colony for this season. Alfalfa honey is amber-colored, and not so fine-flavored as sage honey; but the advantage of making a crop every year more than compensates for the difference in price, which is always higher when the sage-honey crop is a failure.

In the northern half of the State few bees are kept, and a small amount of inferior honey produced; consequently, this section is not worth considering by the man or woman who wishes to make a specialty of bee-keeping.

Compared with eastern bee-keeping, California has some advantages and some disadvantages. Our warm winters enable us to winter our bees without having to carry them into the cellar in the fall and out again in the spring; a larger number of colonies may be kept in one apiary, which saves an immense amount of travel from one apiary to another; the average yield per colony, taking a number of years together, is a little higher—the yield of the Sespe

apiary, which is about an average location, being 7 pounds per colony per annum for twenty years.

Some of the disadvantages are: Lower price of honey, owing to distance from market, and high freight rates; dry years, which often kill more bees by starvation than die of cold in the East; most apiaries are located in the mountains, away from society, schools, and churches, and are lonesome places to live, especially for women, and consequently many bee-men are bachelors.

The disadvantages, however, may be somewhat modified. Bees can and should be fed in dry years in time to keep them from starving to death. The price of honey may be helped out somewhat if the bee-keeper keeps well on his feet financially, and is not obliged to sell as soon as his crop is harvested.

THE BEE-KEEPERS' CONGRESS AT ATLANTA; HOW TO GET THERE, ETC.

On December 4th and 5th 1895, there will be a general meeting of all the bee-keepers of the United States and Canada at the Cotton States Exposition Grounds, Atlanta, Ga. It is to be hoped that all bee-keepers will make a strong effort to be there from Western New York, Canada, Ohio, and Michigan. Arrange to leave home so you can reach Cincinnati Monday evening and take the Louisville & Nashville Railroad from Cincinnati at 7:30 P. M., reaching Nashville Tuesday morning. From Chicago you can leave at 5 P. M. via the Eastern Illinois, and reach Nashville Tuesday morning; via the other routes, you leave in the morning. From the Northwestern States, arrange to leave home so as to reach Chicago Monday, and Nashville Tuesday morning. From the West, arrange to reach St. Louis and take the Monday-evening train of the Louisville & Nashville Railroad, and reach Nashville Tuesday morning. From Nashville the train will run solid, and be a daylight ride to Atlanta, Ga., passing through all the famous battle-fields from Nashville through Murfreesboro (Stone River battle-field), and for miles in full view of and around the base of Lookout Mountain to Chattanooga, and from there through Ringgold, Dalton, Resaca, Kingston, Kennesaw, Big Shanty, and Marietta, to Atlanta.

Do not forget the route—Louisville & Nashville Railroad; Nashville, Chattanooga & St. Louis Railroad, and the Western & Atlantic Railroad, all coupon tickets. Agents can sell you tickets via the above route. Call on your home ticket-agent for exposition rates, and join the bee-keepers for Atlanta, and secure your tickets read Louisville & Nashville Railroad to Nashville. For information not obtainable of your home ticket-agent, address Geo. B. Horner, D. P. A., St. Louis, Mo.; J. K. Ridgely, N. W. P. A., Chicago, Ill.; Herman Holmes, T. P. A., Medina, Ohio; Jackson Smith, D. P. A., Cincinnati, Ohio; C. P. Atmore, G. P. A., Louisville, Ky. Send your names to A. I. Root, Medina, O. If you are going, so they will be here November 30. This is also the "Daisy Route" to Florida.

[Doubtless many of our readers have been much interested in the description of the great peach-orchards established by Hale Brothers, near Fort Valley, Houston Co., Ga. If they should make the trip to Atlanta it would be only a little further to visit this great plant, where such wonderful success has been recently achieved in growing the finest peaches ever produced in the State of Georgia. Several numbers of the *Rural New Yorker* during the month of October gave full particulars, with illustrations of this undertaking. Should it be my privilege to meet with the bee-keepers on the days mentioned above, I for one want to

make the trip to Fort Valley. Probably Ernest or myself will be on hand—possibly both. The only trouble will be in keeping us supplied with plenty of beefsteak.



IN his usual department in this issue, Doolittle gives some very interesting experiments on feeding back.

As previously announced, this edition numbers 15,000 copies. We shall be printing this number for the rest of the year.

IN order to make room in this issue, and still not crowd out the other matter, we add sixteen extra pages, to take in the symposium on wintering.

I TAKE pleasure in introducing to you "Sky-lark," or, rather, he introduces himself. See his "Pickings by the Way," just after Straws, in this issue. If in his soarings he "picks" some of us pretty hard—well, just score the editor, and he will try to get even with the lofty bird.

WE regret that the announcement of the next meeting of the California State Bee-keepers' Association did not appear in our columns in due time. In some way the copy was put with Ramble No. 143 (both written by the same person, on the same kind of paper), and we did not come across it till the last Ramble was put in type—too late to do any good. We write this to exonerate the secretary more than ourselves. The meeting takes place on the 18th and 19th of this month.

THAT EUCALYPTUS HONEY FROM AUSTRALIA
THAT WAS ON EXHIBITION AT THE
WORLD'S FAIR.

THE following, just received from Dr. Miller, will explain itself:

Dear Editor:—Can any one tell us what became of the fine exhibit of eucalyptus honeys at the World's Fair? One hundred and twenty-six two-pound glass jars of the various kinds were sent by the Hunter River Association from Australia, and the proper commissioner was requested to hand over the entire exhibit to Dr. Riley, to be placed in the museum for permanent exhibition at Washington. Dr. Riley also promised to send an exhibit of U. S. honey to be placed in the Technical Museum of the Australians. Unless very lately done, this promise has never been fulfilled; and in the changing of officers it may have been forgotten. Please tell us what can be done to help keep our credit good with our Australian brethren.

C. C. MILLER.

Marengo, Ill., Nov. 11.

I may explain that the above was called forth by a letter to the doctor, received from the sec-

retary of the Hunter River Association, Mr. R. Patten, asking him in regard to that honey. He had already written the Department of Agriculture at Washington, and also to Mr. Frank Benton, without reply; and now he appeals to the doctor to help him out. We will send a marked copy of this to the Department of Agriculture, Washington, and we hope the proper person will be able to give us the information desired.

BEE-JOURNAL EDITORS AND THE BEEF DIET.

THE editor of the *Canadian Bee Journal*, I regret to say, has been very much "under the weather"—so much so that the two last issues of his journal have been delayed some. But he has (or had up to Oct. 9) gained strength enough to be back at the editorial helm a few hours a day. A year ago, you will remember, I was placed almost in a similar position; but, I am happy to say, thanks to the beef-diet treatment which I am still taking, I am just about out of the woods. I feel better than for years; indeed, I am putting on good solid flesh—anywhere from *one to four pounds a week*—the latter being made during the last 7 days. Besides all this, I feel as if I had a mountain of strength and a big stock of reserve force. I propose to keep right on with the diet until I get a constitution that will not be affected by "weather" or any thing else.

I have been trying to get Bro. Holtermann on the same treatment, and he has partially consented to come and go with me to see Dr. Lewis, of 176 Euclid Ave., Cleveland, O. He is too valuable a man to be laid up thus by the "weather."

By the way, the editor of the *Review* says all the bee-editors have been ailing to a greater or less extent, and it looks as if he were right.

If this thing keeps up I shall be preaching beef diet to all of them. I succeeded in getting A. I. R. on to it, much to his benefit, as you know; and, after my earnest solicitation, F. A. Salisbury, that bee-keeper and supply-man of Syracuse, N. Y., went on to it, and at this writing he has been on the diet some five weeks. Oh, yes! Dr. Miller and family are taking it too.

VISITORS AT THE HOME OF THE HONEY-BEES;
THE ALFALFA FIELDS OF THE WEST, ETC.

WE have just had the pleasure of a visit from two prominent bee-keepers—one from the extreme eastern coast, and the other from the far, far away West. Mr. Francis Danzenbaker, of Washington, D. C., called in the interests of the new hive which he has just gotten out. It has a single-story brood-nest, something after the style of his last year's hive, with some little added improvement. The surplus-apartment remains practically the same. But he will have something to say concerning this in Trade Notes later on.

Mr. W. K. Ball, of Reno, Nev., came up with a carload of honey—that beautiful alfalfa that is pronounced by every one who tastes it the finest-flavored honey in the world. It is beautifully rich and thick—so thick, indeed, that it is fairly waxy. In answer to my question as to what kind of season he had had, he said it had been rather poor with him for the last two years.

“Rather poor?” said I; “and what was your average?”

“About 150 lbs., extracted.”

Neighbor Chase, who stood by, turned to me with a smile, and said that, if he could average 50 lbs., to say nothing of the 100, in good years, he would be satisfied. You see, Mr. Ball depends upon alfalfa that is watered by irrigation. The problem of wet and dry seasons is one that they do not have to contend with. The amount of moisture is regulated artificially by man, and you might almost say the flow of nectar from alfalfa, lasting for three months, is regulated in the same way.

A few years ago Mr. Ball thought the locality could not be overstocked; but in later years a good bee range there is pretty well stocked with bees already. But there are portions of Colorado (Brush, Morgan Co., for instance), so Mr. Ball tells me, that sell for from twenty to forty dollars an acre, with water, that would do just as well. Here they get three cuttings of alfalfa per season. It is as fine a grain country as he ever saw.

Mr. Ball owns some 300 colonies, and is using exclusively the eight-frame Dovetailed hive containing Hoffman frames. While here I asked him if these frames gave entire satisfaction. He replied that they did. In answer to the question whether he was ever troubled with burr-combs, he said not, provided he kept ahead of the bees. I showed him at the office some self-spacing frames with metal projections; but he shook his head, and said he preferred to have the wood instead.

When I told him there was a sort of demand for a self-spacing frame with metal projections, and something that can be separated a little more easily than the Hoffman, he said he *wanted* his frames to be stuck together so that he could handle his colonies by the hive. He admitted that queen-breeders might prefer a frame that would require no prying.

The super that he uses is the regular Dove-tailed containing section-holders. The wide wooden separators and the keying up are features that he valued. As Mr. Ball produces tons and tons of honey every season, sending it east by the carload, his testimony along these points was valuable.

The bees he uses are ordinary leather-colored Italians, and hybrids. He has been trying five-banded bees and Carniolans. The former were too cross, too much inclined to rob, and gather-

ed only about half as much honey as the other bees. The Carniolans were gentle, but swarmed altogether too much.

A VISIT FROM BERT COOK, SON OF PROF. A. J. COOK.

A COUPLE of weeks ago a young man dressed in the garb of a bicyclist was brought up to the office by one of our men, and introduced to the writer as Mr. Cook, of Owosso, Mich. He knew my father quite well, he said, and had taken especial interest in my wheeling-tours among bee-keepers, as reported in these columns. I was busy at the time, but asked him to take a seat, and prepared myself to extend to him the ordinary courtesies of a brother-wheelman. It is true he was introduced to me as “Mr. Cook, from Owosso, Mich.,” but as there are a good many Cooks I thought nothing of it; and in the course of our conversation he made a number of inquiries in regard to A. I. Root, gardening, and especially in regard to potato-growing. I had to confess I knew little or nothing about it, and that he would have to see A. I. R., who, I said, was over home taking supper. He politely excused himself and said he would like to call and see him later if agreeable.

There was a gentlemanly and scholarly bearing about him that impressed me favorably, and I said to myself, “Who can he be?” as he left. So a few minutes afterward I called over to the house and told father there was a potato-man over there who seemed to be well up in the art of potato-growing, and that he knew Terry and himself pretty well, and that his name was Mr. Cook, of Otsego, Mich. “Otsego,” said father, “I don’t remember of any Cook there.” I had got Owosso and Otsego mixed up, and so he did not recognize the identity of the name or locality. An hour or so afterward, he came over to my house, a comical smile playing on his face, remarking, “You are a bright one, you are. That young man you were telling me about was Prof. Cook’s son.”

“Prof. Cook’s son!” said I, surprised.

“Yes, indeed. Come over and see him. We have all been enjoying his company.”

“Well,” I said, “he could hardly have thought I was extending him ordinary courtesy to let him go off to a hotel for his supper in that way, and he a son of Prof. Cook. I will go over and apologize.”

It seems he had told me his father was A. J. Cook; but I presume I did not hear him say so; but I was made to feel that no apology was necessary, for he had had a “real good Dutch supper” at the Germania House.

Mr. Cook, Jr., although a college graduate, and a man of more than ordinary attainments, I should say, thinks farming is none too humble a calling for him. He is at present running a farm belonging to his father, near Owosso, Mich., somewhat after Terry, and he is making a great success of it. He is a warm admirer of

Mr. Terry himself, and after leaving here he was expecting to make him a short call.

He had wheeled it, prior to coming here, all the way from Lansing, Mich., to Columbus, O.; and how much farther south I do not know. But he had already covered several hundred miles during raw, wet, rainy weather. Indeed, one of his runs was made during a heavy rain; and, as he expressed it, he was just as wet as if he had been dipped into a cistern. He caught cold, having no dry clothes to put on after the end of the run, but was recovering from it at the time of his visit at Medina.

He was in a hurry, and could stay with us only over night and a little while during the next forenoon. Before he started off again I could not resist the temptation to catch him with the camera, and the result you see above.



BERT COOK.

As the morning was a little raw, A. I. R. had his overcoat on, with the collar turned up around his neck. Mrs. A. I. R. did not intend to be caught in the picture; but she had come out on the porch to say good-by to Bert, and of course just in time to "get shot." She expressed a wish after the picture was taken that her own figure should be erased. The position of A. I. R. as he stands there is one that is very characteristic and natural when he is outdoors giving directions to his men. His own wheel, you see, leans against the house, in its usual position; for where the wheel is you may be sure A. I. R. is not far off, because he will not nowadays walk even from the house to the factory, a distance of less than 500 feet, as it is so much cheaper and easier to ride. Yes, in going 'cross-lots over the gardens he just simply hops on to the wheel and makes it transport him to every part of the plantation, and he "gets there" too.

N. B.—I obtained Bert's consent to use this picture for print. At first he objected; but

when I told him that the general reading public had a claim on him through his father, he at last consented.

THE LANGSTROTH SYMPOSIUM.

FOR our symposium on Langstroth, notice of which has been before given, we have already received communications, one from Edward Bertrand, editor of *Revue Internationale*, of Nyon, Switzerland; one from C. J. H. Gravenhorst, editor of *Illustrierte Bienenzeitung*, Wilsnack, Germany; and one from W. F. Clarke, former editor of the *American Bee Journal*; Prof. Cook, of Pomona College, Cal., all testifying, without regard to country, their high appreciation of Mr. Langstroth, and his services to bee-keepers over the whole world. These and more will appear in the last number of the year.

Since writing the foregoing, I find a very extended and well-written sketch of Mr. Langstroth and his work in the *British Bee Journal* for Oct. 31. Among other things the editor, Mr. Cowan, says: "All readers of Langstroth on the Honey-bee have been charmed by its loftiness of style and the purity of its diction."

"PROFITABLE BEE-KEEPING" is the title of a series of lessons for beginners now running in *Southland Queen*, published by the Jennie Atchley Co., Beeville, Texas. So far as I have examined them they seem to be practical, correct in teaching, and especially adapted to bee-keeping of the South. Indeed, the *Queen* is growing better as it grows older.

By the way, Mrs. Jennie Atchley seems to think I am trying to "sit down on the five-banders, and can't," because I admit that a neighbor finds them to be good workers, and that we have had a couple of good colonies ourselves. As I have said before, I have only given both sides—the good as well as the adverse reports. If the former considerably overbalance the latter, I am sure it is not my fault. If it had been the other way I should have been sounding their praises as loud as any one.

SINCE writing the item in another column regarding sick bee-editors, I am happy to state that Mr. Holtermann is here, and is looking quite well. He says he has gained 11 lbs. As he has a good deal of institute work, necessitating much travel, it will be impossible for him to take diet in the winter; but he is going to take, not tea, but *beef* with me to-day, cooked *a la* Salisbury.

WE regret to announce the death of Mr. John Huckle, "Secretary of the British Bee-keepers' Association, and for many years connected with the business department of the *British Bee Journal*, who passed away at his home at Kings Langley, Herts, on the afternoon of Friday, Oct. 25."

OUR HOMES.

Brethren, the grace of our Lord Jesus Christ be with your spirit.—GAL. 6:18.

Last Sunday evening it was my privilege to listen to a sermon by the Rev. A. T. Reed. It was under the preaching of Bro. Reed, through God's providence, that I was first brought to the light of the gospel of Christ Jesus; and I presume the very tones of his voice will evermore appeal to me in a way that no other voice can or will. Dear friends, where is the good pastor who brought you from the darkness of unbelief out into the light? Do not forget him. If he is so far away that you can not go and hear him preach, send him some little reminder of your gratitude and kind memories, say once a year at least. It will do you good, and it will do him good. But I must not digress.

Bro. Reed is now an evangelist. He may come into your neighborhood. If so, do not neglect to hear him and give him an encouraging word. I told him at the close of his talk that I was going to take his sermon for one of my Home Papers. It would not be exactly his sermon, after all, because it will be after A. I. Root, although the original thoughts for the most part belong to A. T. Reed.

The subject was grace; but in contrasting it with law, a good part of the sermon might be said to concern *law* as well as *grace*. A young lady once asked him to define grace. He thought a moment, and then replied that the Bible itself gave about the best definition of grace he had ever seen. It is in the 15th chapter of Luke. The younger son became impatient of parental restraint, and begged for his portion, and went away, as you all know, and spent it in riotous living. When his money was all gone, he came home again, as you all know. We do not know how he looked; but probably his face showed the marks of his dissipation and excesses. Very likely, with blood-shot and bloated face, and ragged clothing, he decided to go back to his father. Perhaps he recognizes how kind his father had been, even giving him the money that he did not deserve (and which was not justly his own), to go off and do as he had done. He had come to himself sufficiently to decide that he is no more worthy to be called a son. He is simply going to petition, as one of the hired servants. You know the outcome. The broken-hearted old father saw him when he was yet a great way off, and he did not even wait for him to come up. He ran to him, and broke the boy down completely by falling on his neck and kissing him. The poor wretched son manages to say, in broken sentences, "I am no more worthy to be called thy son." The father does not heed this at all, however. He calls to the attendants who have followed after him, and bids them bring the very best things to be had in the house; they take off his tattered and dirty clothing; give him the *best* robe, put a ring on his hand, and shoes on his feet; then they go and get the fatted calf; "for this my son was dead, and is alive again; he was lost, and is found." Not a word is said about his past delinquencies which he had vainly tried to confess; not a word is said in regard to the probability of his going off again on just such a another "spree." It is all forgotten and *forgotten* in the joy of having back again the one whom he had long mourned for as dead, or worse than dead. This, my friends, is a picture of grace. It is a very good picture indeed of the saving grace of the Lord Jesus Christ and his gospel.

Thousands are ready to say, "This is my religion; this is what I believe in. Gentleness and kindness will save the world." Hold on a little. Let us turn back to the 15th chapter of Numbers. Here we have a little story that is often quoted by those who would ridicule or make sport of the Holy Bible. They say that a man was put to death simply for gathering a few sticks on the sabbath. In fact, we read, in the 36th verse, "All the congregation brought him without the camp, and stoned him with stones, and he died; as the Lord commanded Moses."

You will notice that it ends up by saying, "As the Lord commanded Moses." I confess this passage has always been a hard one for me to understand. At the time of my conversion I was obliged to put it aside, with a good many others of a like character, hoping and trusting that, at some future time, the Lord would see fit to give me light on the subject. Bro. Reed told us this was an example of *law*. A school-teacher finds it necessary to forbid certain things. Some rebellious pupil will often be found who will go straightway and break the rule almost as soon as it is made; then the rest of the school look on and say, "What is the master going to do now?" It is a critical time. What *shall* the teacher do?

As Mr. Reed was telling the story my mind ran quickly back to the first school I ever taught. When I commenced I believed in grace, and succeeded in gaining the respect and good will of at least the most of my pupils, and they were making excellent progress. Toward the close of the term, however, whispering and talking became so prevalent in that country school that I knew something would have to be done. I talked with my pupils good-naturedly, and plead with them earnestly, and finally, as a last resort, gave notice that, after a certain time, I expected all *communications* during the hours of study would be stopped. A young man of nearly my own age, and my superior in weight and muscle, whispered to his next neighbor almost as soon as I had laid down the rule. I took him to task. He admitted he had broken the rule, and finally told me *then* and *there* that I was "not man enough" to teach that school, anyhow. The most unpleasant part of it was that he had told the truth. I was obliged to *agree* with him—at least to this extent: *Before* that, I had not heretofore shown enough *manliness* together with grace and mercy. Boys and girls sometimes grow from childhood to maturity in a very short space of time. In the few minutes I stood before my defiant pupil I made some amazing *steps* in growth from boyhood to manhood. Of course, a good many of the pupils were on my side; but the whole school was mentally *taking my dimensions*. That young man, I presume, will remember that day to the last day of his life, and I *certainly* shall. I kept on with the school, and by request taught a month longer than the usual winter term. Not only was the whispering stopped from that day forward, but I was a different man, and a *better* man (in many respects) from that time on. I was *fore-ed*, as it were, into a crisis in my life. I hardly need tell you, dear friends, that our whole nation is going through just such experiences almost every day and every hour. If our laws can be held up and enforced by grace and mercy, all right; but if not, then hard, unyielding law, with its iron bands and prison bars, must do the work.

Complaint is often made that parents, teachers, and even officers of the law, punish one offender, while they let another go, when both have committed the same offense. This is

true, and it is right. Suppose a teacher finds it necessary to make a rule, as I have before illustrated. Some defiant boy breaks the rule as soon as it is made. He looks the teacher square in the face, perhaps with a defiant smile. Such a boy is called up, and severely punished. Somebody reports that "Johnnie" also did exactly the same thing. The teacher knows both boys, and their habits and dispositions. Johnnie comes forward, with his poor little face puckered up in agony at the thought of the punishment. He finally bursts out crying, and confesses his fault, at the same time that he also confesses another fault. He was not *listening*, and did not hear what the teacher had said. The teacher replies, perhaps, something like this:

"Johnnie, from what I have known of you I could not for a moment believe it possible that you willfully and *defiantly* disobeyed me. We can all see by your looks and manner that you are sufficiently punished already. You may go to your seat; but for my sake, as well as your own, be careful to *listen* in the future, when your teacher is talking."

In the family circle the father often represents law, while the mother represents grace and mercy. Very likely God intended it should be thus. Both are right and proper. Some boys once accosted another boy, who had had a good bringing-up. Perhaps the conversation was something like this:

"Jimmie, we are going to have some fun to-night. Come and go with us."

"But," says Jimmie, "I have to be at home at 9 o'clock every night, you know."

"Oh! fudge, Jimmie. Who is going to stand about nine o'clock after a boy gets to be as old as you are? You just come along with us this once. Why, we are going to 'paint the town red' to-night. Sooner or later you are going to be a man and judge about these things yourself. Just tell the 'governor,' as I told mine, 'scolding don't hurt none; whipping don't last long! kill me if you dare. I am ready; come ahead.'"

Jimmie should not have stood and listened to such talk, but, like many another boy, I fear he did. I need not tell you all that was said. Most of you know something about it already. The consequence was, he went with the rest of the boys. He did not get back at ten o'clock nor eleven; and then when he did go, the question was, how to meet *law*. He climbed up on top of the woodshed, and then pulled off his boots. You know how it is yourself, most of you. After a long time he got the window up, almost without noise, and felt a little relieved to hear Law snoring loudly. His father was sound asleep. He got into bed without making a bit of noise, or pretty nearly that. But just as he was closing his eyes to go to sleep he was startled by hearing footsteps on the stairway.

"Why, that can not be father," said he to himself; "no, for I still hear him snoring. Oh! it must be mother." And then he decided to pretend he was asleep. She came up to his bedside so carefully that he hardly realized her presence until he felt her gentle kiss on his face; and then, in spite of her, two or three hot teardrops trickled down across his forehead. Not a word was spoken. She went back as she came up. A few nights after, the boys invited him again; but Jimmie shook his head.

"Oh! you caught it from the governor, did you?"

And then they commenced their taunts and jeers. Jimmie evidently did not see fit to tell them his reasons for refusing. Not long after, however, his father died. Then they came after him again.

"Well, Jimmie, the governor is dead and gone now, and you are a man to act for yourself and do as you please. Come out with us, and let's have some more fun."

Jimmie straightened himself up a little. He too had been growing within a few days.

"Boys, do you think I have been at home every night at nine o'clock, during all these months that are past because I *fear*ed my father? You are mistaken. I stayed at home and behaved myself out of respect to my good mother; and now that father is dead and gone, and she is left alone in the world, if it needs the last bit of breath there is in my body, and the last bit of strength I possess to defend her, and avoid hurting her feelings, either directly or indirectly, that breath and that strength shall be freely given, even if it is only a feeble payment of the great debt of gratitude I owe to her for what she has done for me."

That kiss and those teardrops on that memorable night were more potent with Jimmie than any punishment the father had power to inflict. Alas! boys are not all Jimmies.

I have mentioned to you how often in my travels I am called upon to ask a blessing at the table. A great many times the friends say, "Mr. Root, will you say grace?" I believe the word "grace" is more used in the South than it is here at the North. But what a beautiful thought! grace before meals! Let us take an example if you please. A laboring-man comes home to dinner. The poor overworked wife is springing about here and there; in fact, she is sometimes a good deal slyer than a girl of 16, even though she is past 40. The husband says, "Dear me! have we got to wait for dinner now, when I have not a minute to spare?" Then he adds, "Why can't you do something to keep that baby from yelling like that?" Just at this time Johnnie comes home from school, and happens to get in his father's way, and he gives him a cuff. Then Mary does something that a child ought not to do, and she is sent off crying, in a similar way. By this time the wife has hastily got the meat on the table. The father sits down, cuts off a huge chunk, and crams it into his mouth. Dear friends, you can fill out the picture yourselves. If you have not witnessed just such scenes, may be some portions of the story may come home to you.

But we will suppose this man and his wife have been attending the revival meetings. The husband has been converted. He comes home to dinner as before, his work crowding, but he can not sit down as he used to do, for now they say "grace" before meals; yes, and *grace* all through the meal and after the meal. He is tired and hungry, and feels petulant; but he does not give way to it. The baby is crying. In a minute the strong arms of the father have lifted it up. Then the father's strong earnest "grace" and good will have driven away the tears, and the baby is laughing with delight. The wife comes in with the meat as before, and what a change has come over her poor tired self!

"Dear wife, did you ever see a brighter or handsomer baby?"

There are still marks of the teardrops down the baby's cheeks, but he is crowing with delight. Johnnie come in and says he is next to the head at school. "Well done, Johnnie," says the father, and he gives him an approving pat on the head. Then Mary has something pleasant to tell. The children help to bring the chairs to the table, then the father carries the baby with one arm while he helps bring in the things from the kitchen with the other; and finally all are ready to sit around the happy board. Now, I do not know exactly what

sort of a blessing John asks before they commence their meal; but you may be sure there is grace in it, no matter what the words may be. If his saying grace is after my own fashion, his words would probably be something like this:

"O Lord, we thank thee for this pleasant and happy home. We thank thee for these our dear children. We thank thee for health and strength, and for good appetites, and for this our daily food. May it strengthen us that we may be helpful, one to another, and that we may be self-sacrificing; that we may have grace to use our strength so that selfish feelings shall be put down, together with all that is evil; and may we uphold all that is good and noble and pure, for the sake of the dear Master, our Lord and Savior Christ Jesus. Amen."

Some of you may say that all this takes a good deal of time. My friends, it really takes less time than I have been telling it, for all soon learn to help. If the parents set an example before the children, of bearing each other's burdens, when all go to work cheerfully to help things along, instead of hindering, then time is being *saved*. Besides, this very cheerfulness and bright hopefulness helps digestion to such an extent that all will be better fitted for the duties of the afternoon, and more work is accomplished—oh dear me! *before* supper-time—than if each pushed ahead for self and nothing else, and hardly took time to eat a meal and eat it properly. Of late I have been, by the doctor's orders, taking a full half-hour, or sometimes three-quarters, for each meal, principally because every thing is so thoroughly chewed before it is swallowed, instead of washing down the food with drink at meal-times. Well, I am greatly a gainer, and the time thus taken to say grace before our meals, and to get all the family together "decently and in order," is certainly *saved*, oftentimes, *many times over*, before the day's duties are done.

A great many people, you know, call the Old Testament "law," and the New Testament "grace;" and some go so far as to keep the one and reject the other. I have given you one illustration of law from the Old Testament. Just read about Ananias and Sapphira in the 5th chapter of Acts, and you will have a striking illustration of the need of *law* as well as *grace*, in the New Testament. It was just in the beginning of the Christian church; at the very outset, hypocrisy, deception, and falsehood had crept in. The very life of the new church depended on prompt and vigorous measures; and this terrible illustration was given us that it might stand through time and eternity as a warning to all who would undertake to make religion a cloak.

It is true that the New Testament is mostly taken up with the coming of the Savior to this world. "For God so loved the world that he gave his only begotten Son;" and it is also true that the message of that only begotten Son was peace on earth, good will to men. As we have it in the first chapter of John, "The only begotten of the Father, full of grace and truth." The Savior's mission was one of grace. While he did not annul the law or do away with it, his work was *particularly* a work of grace. But he fulfilled the law by his mission of mercy and grace. Almost the only time when he used any means that even approached severity was when he took occasion to drive the money-changers out of the temple. The Old Testament is law in one sense; but if we had to deal with law, and law only, we should all be lost, every one of us, for we are all sinners; and it is here that this mission of grace comes in; or as that beautiful hymn expresses it—

Jesus paid it all—all to him I owe;
and as I approach this part of my subject a great number of those old familiar hymns well up in a way that seems as if the writers must *surely* have been inspired when they wrote them. For instance:

Just as I am, without one plea,
But that thy blood was shed for me.

You see the sinner does not depend upon his good deeds nor upon his clean and faultless life. He acknowledges in the outset that there is no hope in *that* direction. Our only hope is through the blood that was shed, and the grace so freely given for us. And then, again, comes in that old hymn that I used to hear my father sing just as far back as I can remember. He was converted, if I remember rightly, at a revival meeting, and perhaps it was my good fortune to hear some of those hymns of praise welling forth as a spontaneous outburst of a new-born soul:

Oh, to grace how great a debtor
Daily I'm constrained to be!

How many, many times it has occurred to me that my father must have passed through much the same trials I have met—much the same that I am meeting day by day! How wonderfully expressive that word "debtor" comes in! Again:

Let thy goodness, like a fetter,
Bind my wand'ring heart to thee.

We naturally associate the word "fetter" with something disagreeable; but when we think of being fettered by the *goodness* and *grace* of Christ Jesus, then well may we burst forth, "O glorious fetters!"* Once more:

Prone to wander—Lord, I love it;
Prone to leave the God I follow.

I do not know how it is with the rest of you, friends, but these two lines tell the history of my life better than any thing else ever told it. With sadness and sorrow, with humiliation and shame, I acknowledge that I am *still* prone to wander; and what shall be done, not only for me, but for all others like me? Here we have it:

Here's my heart; oh, take and seal it—
Seal it for thy courts above!

That is all we can do; and, oh glorious thought! it is all we *have* to do—all we *need* to do. If our hearts are in the Savior's care—if they have been placed in his keeping—if his loving *seal* has made them safe, the work is done, through life and through eternity.

Let me now close with that wonderful verse from the first chapter of John—a verse that, it seems to me, I have never appreciated and understood before as I do now at the close of this talk:

And the Word was made flesh, and dwelt among us
(and we beheld his glory, the glory as of the only begotten of the Father), full of grace and truth.

There is a class of people, as you know, who claim that they do not want grace or mercy. All they ask for is *justice*. By the way, it just occurs to me that the friends I meet in the county jail are the ones who oftenest make this claim. I do not know that I have ever heard anybody, however, plainly declare he had never broken any of God's laws—even the best men among us. The most faultless Christian, our leading evangelists, whose lives are *comparatively* clean and unspotted, would not

* You will remember that Jimmie's companions supposed he was fettered by the law of his father. There were fetters, it is true, that kept Jimmie; but they were fetters of grace—his mother's prayers and anxious solicitude. Yes, the tears that were shed when she supposed him to be asleep were the fetters that held his "wandering heart."

dare to claim this. If, then, there is no salvation by clinging to hard, unyielding law, it must come through the grace of Christ Jesus.

For there is no other name under heaven given among men, whereby we must be saved.—ACTS 4:12.



BATTLE CREEK, MICH.

I have heard of people being *half* baked; but I do not know that I ever heard any mention of their being *twice* baked. Huber says the zwieback (*tsueebok*) that our family are all so fond of simply means twice baked—from *zwei*, two, and *backen*, to bake. You see, Huber is studying German. Well, this delicious bread, which is getting to be so popular of late, is called zwieback because the bread is baked in the usual way, and then sliced up and baked again; and this last baking should be a slow process, occupying several hours; and to get the best and most wholesome product, not only should every bit of moisture be expelled from the bread slices, but the starch should be mostly converted into dextrine; then the patient, if he is suffering from impaired digestion, should eat it without drinking any liquid whatever. I complained to Dr. Lewis that it took me so long to finish my meal. Said I:

"Doctor, why can't I moisten it with a little hot water? it takes so everlastingly long to eat even a little piece if I chew it as you direct, until it is a soft and creamy food; that is, when the juices of the mouth have to furnish a lubricant."

He replied something as follows:

"That is just exactly what I want you to do. Take plenty of time to eat your meat and zwieback both, to masticate them to completion and mix them with the secretion which nature produces on purpose. We want the digestion to be carried as far as possible while the food is in the mouth, and thus relieve the worn-out or impaired stomach and bowels."

By the way, it has been suggested that the reason why Carlsbad, Germany, has such a reputation as a health-resort is that the people there subsist mostly on their famous zwieback.

The Battle Creek folks manufacture three kinds—that made from white bread, rye bread, and from whole-wheat flour. Dr. Lewis gives the preference very strongly to the whole-wheat flour. By the way, we have a flour-mill just five miles from here, where they have recently put in an apparatus for making whole-wheat flour. After testing a great many kinds of health foods, I am forced to decide that bread (or, rather, zwieback) made from whole-wheat flour, comes the nearest to beefsteak of any thing I can get. If you are suffering from indigestion, get some of this whole-wheat flour, and have some good bread made, without any sugar or baking-powder. Slice it up, and dry the slices, as I have told you. If you want a sample of the very best, get some of the Battle Creek product. You can get a small sample by mail. May be you will decide, as we have done, to buy it rather than to take the trouble to make it yourself. They buy a special brand of wheat, the best that can be got. It is most carefully cleaned, and then ground with the very best apparatus for making the whole-wheat flour. The bread is then made by machinery of the very best improved kind. All

the kneading and hard work is done by a steam-engine. It is then baked in a coke-furnace that does it just to a dot. Then the loaves are sliced up by appropriate machinery, and baked again by being placed on large trays of netting. These trays revolve slowly so as to be several hours in getting once around; and during these several hours, each tray is exposed to just the right temperature to dry it to the best advantage. The result, instead of the ordinary dry crust, as some might call the zwieback, is a crisp and delicious dry bread that crushes in your mouth like the most delicate crackers or wafers; and one of the nicest things about the zwieback is that it will keep indefinitely if you will only keep it *dry*. If the weather is damp, and you can not keep it in a dry place, give it another baking, say once in several days. In this way it may be kept indefinitely. I understand they ship it clear down to Florida.*

You may be at first inclined to call their food products expensive; but please remember that every particle of moisture is expelled, so you do not pay any thing for *water* as you do in buying canned goods, loaves of bread, fruit, or almost any thing else. Again, the cooking is all done on a large scale by appropriate machinery. If you want to get along in your housekeeping, without a hired girl, or a limited amount of help, using food already cooked, it is a very great saving, especially when it results in saving your wife from laborious housework. Again, it is most wholesome. The same may be said of their delicious grain product called granose. In making this, the very best and nicest choice wheat is steamed and parched, the parching being done with steam as well as the cooking, if I have got it right; and this cooking process is carried on several hours, so as to make every portion of the grain as easy to digest as thorough cooking can make it. Then it is passed through rollers that spread the wheat grains out thin like Saratoga chips on a small scale. Last, it is thoroughly dried, so it will keep like the zwieback, indefinitely. This is a delicious food to eat raw, without any cooking whatever. I have just had a *taste* of it when moistened with milk, and it seemed to me the very embodiment of something both delicious and nutritious. I think Huber agrees with me, by the way in which he manages a bowl of granose and milk. But I am for the present forbidden the use of milk.

There were so many machines and so many

[There are quite a few people who have found that they can not eat oysters; at least, oysters and crackers as usually served do not agree with them. Let all such substitute zwieback for the ordinary oyster-cracker of commerce and note the result. If you think our ordinary crackers are made of good healthy materials, let some of them get old, and see what they smell like; then give zwieback the same treatment. At the usual retail prices I know zwieback costs a little more than the crackers. In our market oyster-crackers retail at 8 cts., while the Battle Creek zwieback is 10. But I think you will agree with me that a pound of the latter contains a good deal more food than a pound of crackers, besides being ever so much more wholesome. Again, if the housewife has plenty of time, and not much to do, she can manufacture the zwieback so it will not cost nearly as much per pound as the crackers. Please remember the best kind of wheat flour costs less than 2 cts. per lb.; and the cost of every thing required to make the bread or the zwieback, if you choose, aside from labor, should not be more than 2 cts. Of course, you can buy crackers when there is not time to make bread. But it is a good deal cheaper, and ever so much healthier, to let good home-made bread take the place of crackers in the family; and I think you will agree with me that zwieback, made of whole-wheat flour, is more toothsome, besides being *ever so much* more healthful.]

processes going on in the way of cooking, baking, and drying, that I found myself quite unable to take it all in during my brief stay; and I am just now feeling as if I wanted to go back to Battle Creek and look the thing all over again. But I must not spend all my time in talking about that cooking-factory, even if it is an exceedingly interesting matter to me. At this stage of health I am gaining flesh at the rate of two or three pounds a week, with an appetite all the while for a good deal more than I allow myself to eat. Yes, I have learned, among other things, that overeating *must* be guarded against, even on the diet of pure beef, especially when the patient is allowed also a little zwieback or granose, or something equivalent. The Battle Creek folks have a great printing-establishment. By the way, what do you think of a great building containing 280 printers—yes, *printers*—who neither drink, swear, nor use tobacco? Now, I presume there are quite a few type-setters who read GLEANINGS; but they need not feel hurt at what I have said, for I know something of the habits of the average printer, especially in our great cities. Well, these Battle Creek printers not only abstain from all these things I have mentioned, but, if I am correct, they use neither tea nor coffee, and for the most part are probably vegetarians, and eat only *two* meals a day. What effect did it have on them? Well, I used my eyes in that great dining-room so thoroughly that I did not know but some of the men and women would feel hurt; but even with the vegetarian habits, and with only two meals a day, they were about as healthy, happy, and nice-looking a lot of people as I ever saw in my life. They seemed to have a "right smart" of an appetite for their dinner, between two and three in the afternoon; but I did not think any the less of them for that. It just did me good to see them help themselves to plateful after plateful of the provisions. And I began to wonder to see them all have such vigorous appetites until I remembered they had had nothing since about eight o'clock in the morning, and expected nothing to eat again until the same time the *next* morning. They took plenty of time to eat their food, and there was lots of chatting and good-natured merriment going on. Take it all round, you may find as much fault with the Advent people as you can; but after it is all said and done, you will have to admit that they not only have a model establishment, but that they are a model *people*.

□ It seems almost out of place for a man of my age, especially after some of my teachings, to say any thing about the good-looking women at the sanitarium; but when I tell you to put particular emphasis on the *good* I think it will be all right. Yes, I think I never saw any handsomer women anywhere in my life. And this calls to mind the fact that not one out of the several hundred employed there wears a *corset*. If I have not told you before my opinion in regard to corsets, you can probably guess what it is. And then, again, if I have made no mistake there was not a woman in that crowd who wore ear-rings or even a *finger-ring*. In fact, I am not sure that they wear jewelry at all. Dear me! if all the jewelry in the United States of America were converted into money, or, better still, if we had had the money before it was ever *invested* in jewelry, there would be no need of the present destitute state of affairs in our mission work in foreign lands, to say nothing of the need of efficient *teachers* in our own America.

There are something like 600 people employed in and about the sanitarium, and there are chapel services twice every day—once in the

morning and once in the afternoon; and the help, I believe, as a rule, are expected to attend at least one of these services every day. A great number of them take part, either in reading the Bible, repeating texts, giving brief experiences, or brief sentence-prayers. It takes a good deal of time. Yes, so it does; but the helpers are *paid* for their time while attending the services, just the same as while at their work, and the management have found it to pay.

Friend Keck gave me some valuable points right here, and yet they are not so *very* wonderful after all. When I suggested that, among such a crowd, there would certainly be some who would be tricky or dishonest, he said they had found by years of past experience that *prevention* is better than cure. Whenever any one of their number begins to show a disposition to evade or avoid chapel services, the probability is that he is straying away from the fold, and the right committee is notified to look after him. When this system is carried out, there is almost no such thing as a defaulter or forger. The man is stopped long *before* he gets into the depths of *crime*.

"But these people must be terribly strict," you say. Yes, they are. Before one unites with them, and consents to change his usual Sunday to Saturday, he must have pretty *strong convictions*. It made me think of Gideon's band we had in our Sunday-school lesson recently, as you may remember. Under God's direction, Gideon sorted out the very cream of his great army. The Battle Creek people seem to have sorted out—well, let us say some very faithful, earnest, devoted men and women who are banded to carry on their work.

Although the institution possesses immense wealth, its *members* can not get rich very fast. They all work on small salaries. For instance, the nurses, of which there are several hundred, get only five or six dollars a week; but if they go out through the city of Battle Creek and elsewhere to take care of patients, they get from ten to twenty dollars a week. The profit goes to build up the sanitarium. But this sanitarium has never paid any dividends, and never *expects* to pay any. Money, labor, and every thing else, is for the glory of God—at least, this is the way I got it from friend Keck; and if I am wrong, somebody who reads GLEANINGS can doubtless set me right in regard to it.

To be Continued.

DOCTORING WITHOUT MEDICINE.

HOW TO MAKE THE MOST DELICIOUS AND
TOOTH-SOME PIES, AND PIES THAT
HELP DIGESTION INSTEAD OF
IMPAIRING IT.

Through all the long weeks and months of my pure-beef-diet experience, perhaps I have longed for apple-pie more than for any other one thing. Sometimes I could actually have gone away and cried because I could not have any, especially when Mrs. Root brought forth some of her own making, with their brown, crisp, flaky crust and appetizing flavor. The doctor, however, was inexorable. He said it was a depraved appetite that was calling for the very thing that had got me into my past troubles. I knew he was right, because I found by many trials that a piece of pie after dinner was what upset me entirely, especially if I partook of the rich and greasy pies so often found when one is away from home. Well, now, for my discovery. At the present time I am eating about 1½ ounces of sirloin steak at each meal,

with greater appetite and zest than I ever ate anything before in my life. I verily do believe. Of late I am allowed with this meat diet say about one ounce of zwieback, such as I have described; and, by the way, one ounce, if it is made right, is a pretty good slice of bread. I am also allowed a piece of butter about as large as will lie on a teaspoon without heaping it up very much; and for the past few weeks the doctor has permitted me to make some explorations in the line of testing different kinds of vegetable food. For instance, when I insisted that I could digest corn-meal mush when thoroughly cooked a long while, he told me to try it—eat a small sauce-dishful for breakfast only—not any other vegetable food during the day. The one experiment satisfied me that the doctor was right. Corn meal is by no means the grain to choose, if you want one easy of digestion. Bread made from whole-wheat flour is ever so much better, but the zwieback is still better. Rice, when cooked a long while, is perhaps as easy of digestion as any thing else unless it is the zwieback. Some of the patients eat green peas, without trouble—that is, when the peas first begin to ripen, and none are old and hard. The green peas did not do for me at all. They were even worse than the corn meal. I need not tell you of other experiments made; but my final conclusion was that the doctor knew his business, and had a better knowledge of my particular case than I had myself.*

I have always had a great fondness for baked apples; but the doctor felt pretty sure I had not got to the point yet where I could manage them, and one or two tests showed me he was right. A few days ago, however, it occurred to me that a little baked apple, or plain applesauce without sugar, would go well with my granose, and not do harm. Mrs. Root made some plain sauce for me out of rambo apples, cooking

*Perhaps I had better acknowledge right here that I have had an attack of my chills since I have been on the meat diet. After I had been experimenting on corn meal, green peas, and baked apples, it happened I was called to a church conference in a remote part of our county. It was in a small town where there was neither hotel nor meat-market. I did not discover this until just at meal-time, after a prolonged afternoon session. I thought I would ask one of the waiters to get me some meat of some kind; but there was a greater crowd to dinner than they expected, and everybody was hurried and worried; so for once I ate a promiscuous dinner of chicken-pie, soft fresh biscuits, cookies, etc. There did not seem to be any help for it unless I intruded my "peculiar notions" (as people might call them), and so I submitted. The next morning I had sore throat; then I was called away from home again, ate two more "regular meals," and got my digestive apparatus completely out of tune, took one of my old severe colds, had to be bundled up with fur cap and overcoat, and finally became so hoarse a part of one afternoon that I could not speak a word, and for the first time in my life I had to write on a piece of paper what I wanted to say. Nobody could read my hasty writing (not even Mrs. Root herself), and I tell you I was in real trouble. Sick, sore, weary, cold and chilly, I could not speak a word. I finally decided to go back to the doctor and confess my shortcomings. He said it was just what I might have expected, and that it was entirely the result of my backsliding and getting away from my regular meals and habits. But he finally told me to "be of good cheer;" for if I would get right back to clean ground meat, and nothing else, for four or five days, all would be straight. At the diet-house Mrs. Ferguson gave me new courage by saying she had seen the doctor get his patients out of similar troubles again and again. "Why," said she, "he just 'cleans the cold right out of them' by his doses of hot water, and strict meat diet, and they are all right again in two three days." It took me about a week to get back into the straight path from which I had strayed away, and it left me perhaps a little sadder, and I trust a little wiser, for my experience.

them several hours. About as much of this sauce as one ordinarily gets in a piece of apple-pie was given to me in a saucer. Instead of putting my spoonful of butter on the meat I spread it over the warm apple-sauce. Then I sifted on about half an ounce of granose. An ounce of granose makes a great heaping saucerful, as you will notice if you try it. Well, this made my delicious pie. The butter furnishes the shortening, and the granose the crust. Surely there was never made by housewife or anybody else a more crisp, flaky, toothsome, and delicious pie-crust than the granose formed. With my spoon I mashed it down into the melted butter and sauce. I have now eaten a similar dish perhaps half a dozen times, and it agrees with me to perfection. The other half-ounce of my granose is sprinkled in the gravy, with my sirloin steak; and if the combined culinary art can get up a more delicious meal—that is, from my point of view—I have never yet found it—meat, fruit, and grain combined. If your apples are made into sauce, without sugar, they preserve the distinctive flavor of each variety; and the fact that I can now eat the different apples that are talked about, in the way I have described, and enjoy them as I never enjoyed them before, fills me with gratitude and thanksgiving.

Yesterday afternoon, when I awoke from my nap, almost before consciousness was fully restored, the thought came into my mind—"Praise God, from whom all blessings flow;" and I greatly enjoyed singing it out loud; and not only the words but the sentiment welled up from the bottom of my heart.

Some of Dr. Miller's friends felt troubled because I got down to 110 lbs.; so they will feel glad to know that to-day, Nov. 9, I have got up to 117½ lbs., and I feel happy, strong, and well, every hour of the 24, and especially the half-hour or fifteen minutes before dinner-time.*

The gluten mush I spoke of in the last issue is tiptop; but it is a very powerful and concentrated food, and does not seem to answer for every meal quite as well as the zwieback. All these things, however, are nice for a change.



FORTY POTATOES OF THE CRAIG SEEDLING.

Above we give you the picture mentioned in our last issue. The Craig potato is remarkably fine-shaped, a flattened oval, with eyes very nearly level, so that it is easy to pare; no knobs

* To-day, Nov. 13, I have got up to 121½ lbs.

nor projections; almost always of large size. Outside it is a little on the reddish line; but when cooked it is almost white—a little yellowish white, perhaps. While the quality is not equal to the Freeman, it is fully as good as any of the large strong-growing potatoes. I have never myself seen any of them where the vines died before they were killed by frost; consequently none of ours, very likely, gave us as fine a quality of potatoes as where they ripened up of their own accord. Possibly our plan of heavy mulching with coarse manure has much to do with keeping them growing as they do; but I shall, at least so long as I have such good success, hold fast to the mulching plan. Just think of it! the most of the work is done before your potatoes are planted. Before they are quite out of the ground we go over them with the smoothing harrow, and we use this harrow again after they are up just a little. If the weather is favorable, then we use the Breed's weeder; and by the time they have been cultivated, say two or three times with the Planet or Iron Age cultivators having a good many fine teeth, the tops begin to cover the ground so they are ready for the mulch. We have them planted such a distance apart that the horses and wagon straddle the rows. One man pitches off the coarse manure while another pitches it under the foliage or between the hills. If you have a pretty good soaking rain after you get this mulch in place, your potatoes are pretty sure to be safe so far as drouth is concerned. If rank weeds push through the mulching, pull them out by hand. Our experience is, however, that, with the Craig potato, the vines soon cover the ground so thoroughly but little care or tending is required after you put on the mulching.

Several who have reported speak of the missing hills; and I am forced to conclude this may be a fault with the potato. Next spring, however, we are going to try to have every eye started before it is planted; that is, we will plant no pieces until the eyes have started sufficiently to make it pretty certain, and then we shall have a full stand. Here is a report from away down in Missouri:

FORTY-SIX POUNDS OF POTATOES FROM ONE POUND PLANTED.

The two pounds of Craig potatoes I bought of you last spring were cut to one eye pieces; planted when I planted early potatoes; vines very rank, but dead before frost. Yield, 92 lbs. of fine large potatoes, the best I raised this year. My Freemans did not come up to my expectations.

JOHN GEARHART.

Princeton, Mo., Nov. 6.

Yes, friends, we know the Freeman ordinarily does not give the great yield that many other potatoes do; but for the present, in our family, the Freeman leads them all in quality. We had some baked for breakfast this morning. Several other kinds were put in so as to compare them with the Freeman. If you want a baked potato to be nice, you must be on hand when they are just ready to come out of the oven. The Freemans would break open with the contents, so dry and floury they would almost shake out of the peeling.

AT THE RATE OF 120 POUNDS FROM 1 POUND PLANTED.

Last spring I received by mail from you one-fourth pound of Craig potatoes. They were cut to single eyes, making 14 which were planted one in a hill, in moderately strong garden soil. The tops died down two or three weeks before frost, and I dug 30 pounds of them. I don't know much about how potatoes

ought to yield, but it strikes me that raising potatoes at the rate of 120 pounds to 1 planted is doing pretty well. They were nearly all of good size, but only one of them weighed a pound. Orlin, Mo., Oct. 28.

D. B. THOMAS.

Well, well, friend T., your report, it seems to me, beats every thing heretofore; at the rate of 120 lbs., from one pound planted, it is away ahead of even Maule's Thoroughbred. But yours had a whole season to grow in, or nearly the whole, as it is a late potato; and probably you took a little more pains than the ordinary field culture given the Thoroughbreds by friend Terry.

I bought one pound of Craigs of you last spring. I cut them one eye on a piece, and put two pieces in a hill, making 18 hills all told. Only about half of them started. I think they had been frosted, as they were black, more or less on the inside. Have you had any complaint on that score? I dug them a few days ago—just 40 lbs. of old whoppers. I tell you—no small ones at all, only in one hill, where there was a dozen or more from the size of a pea to that of a hickorynut. The bugs ate them some, and they blighted, but not as bad as other varieties all around them. Maggie Murphy is very similar in color and shape, but earlier, and blighted the worst of any, and is not quite as large. There was no sign of any scab on the Craigs.

E. MANNING.

Jacksonville, N. Y., Oct. 21.



The Sir William potato, advertised in this issue, is a very nice table potato, in addition to its many other good qualities. I had a bite of a large nice one this morning, so that I know whereof I speak.

In giving the price of granola, in our last issue, it was, by mistake, put at 20 cts., when it should have been 10 cts. in bulk or 12 cts. in 1-lb. cartons, and whole-wheat wafers should be 12 cts. per lb., instead of 20 cts.

EARLY OHIO POTATOES.—ANOTHER LOT.

For several weeks we have been sold out of Early Ohios, but have just now secured a fine lot of about 200 bushels. We can now furnish them, both firsts and seconds, as heretofore advertised; namely, \$1.50 per barrel of 11 pecks for firsts; 75 cts. per barrel for seconds, so long as the seconds hold out.

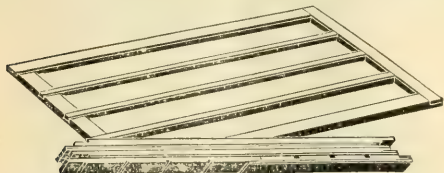
MAULE'S NEW EARLY THOROUGHbred POTATO UNDER GLASS.

On page 819 I told you we had received a pound of the above by mail. The pound consisted of three medium-sized potatoes. A half of one of them was cooked as a sample. The rest were cut to one eye, and planted 7 inches apart in our best lettuce-greenhouse across the way. Exhaust steam was turned under the bed so as to give bottom heat; and to-day, just 20 days after they were put in the ground, we are delighted to find they are sprouting nicely. Two of them have already burst through the ground. The 2½ potatoes made just 28 eyes. Now, then, we are going to see what can be done in the way of raising potatoes under glass, started the latter part of October. We propose to move them further apart as fast as they get crowded.

I am very sorry that quite a few have understood that we give a pound of these potatoes for renewing your subscription instead of sending us a new subscription. My object in making this big offer was to get GLEANINGS into families or localities where it has not been before; and our five barrels of potatoes that cost us so much money would be gone in no time if we gave a dollar's worth of potatoes to every one who renews for 1896. We stand quite

ready to return the money to all who think there has been any unfairness about our offer. In this issue there will be found some exceedingly liberal offers for simply renewing, and nothing else.

OUR NEW LOW-PRICED SASHES FOR COLD-FRAMES, HOT-BEDS, AND MOVABLE-SASH GREENHOUSES.



With the above we give you a cut of our new light hot-bed sash, both made up and in the flat. It all goes together with screws, and can thus be shipped very cheaply in the flat at low rates for freight. We are using these sash every day right along with others that weigh twice as much, and cost as much again; and we should much prefer the light cheap sash, even if the heavy ones were offered us at the same price. For prices see page 825, Nov. 1.

THE FUMA, OR BISULPHIDE OF CARBON.

The advertisement of this, which appears in our present issue, is surely the greatest thing in the way of an insecticide that has yet been discovered. We have repeatedly mentioned its wonderful property of killing the weevil in beans and peas, even before they have eaten through the seed. Recent investigations by our experiment stations and others have shown that it is the cheapest and most effective remedy for almost every insect, or animal pest that afflicts the farmer or horticulturist. We used to pay 40 or 50 cts. a pound for the drug; but it is now offered in quantities for less than one fourth that price. There should be no excuse now for having insects, rats or mice, in our houses, barns, cellars, granaries, or anywhere else. It is not often that we give so much space toward helping an advertiser; but this is a recent product of unusual merit.

ALFALFA HONEY.

Since our last issue we have received from Reno, Nev., a carload of choice alfalfa honey, consisting of over 800 24-lb. cases of comb honey, 104 cases of two 5-gallon cans, and 28 cases of six 1-gallon cans of extracted honey. The larger part of the comb honey has already been sold. It is very white and choice. As the honey-flow was cut off suddenly by frost, there are a good many unfinished sections. These we have put into cases by themselves, and should be glad to hear from any who can use such honey in considerable quantities. All the honey, even in these unfinished sections, is very thick and heavy, and as delicious to the taste as the finest honey ever gathered. We offer choice comb honey at 16 cts. per lb. Lots of 9 cases, crated for safe shipment, by freight, 15c. The No. 2, or unfinished sections, 3c per lb. less. The extracted honey in 5-gallon cans we offer at 8c per lb. by the case of 2 cans; 7½ in 2 case lots; 7c in 5 case lots or over.

White-sage honey at the same price. Clover and basswood, and Michigan willow-herb honey, ½c per lb. extra.

Alfalfa honey in 1-gallon cans, at \$1.05 each; \$6.00 per case of 6; two cases, \$11.30; 5 cases, \$26.50.

CARLOAD ORDERS.

We have received, during the past few days, orders for four carloads of bee-keepers' supplies. One is for export to Sydney, Austr.; another, consisting chiefly of sections for export to England, and two carloads for Barteldes & Co., Denver, Colo. In these two cars are 8000 shipping-cases—sufficient to case 90 tons of comb honey. We have already sent to Colorado this year a good many thousand cases, and the bee-keepers there have evidently secured a good crop of honey this year. We are also expecting daily an order for a carload of goods to Portland, Oregon, for Buell Lamberson, our agent for Oregon and Washington. We have the assurance of a carload order from McClure Bros., Las Cruces, New Mexico, and recommend all our readers in that section of country, who are in need of supplies for

next season, to communicate with these parties, who can save you money because of what they save by getting the goods out in car lots.

ON TO ATLANTA.

Ask your ticket-agent for tickets to the Cotton States Exposition at Atlanta, Ga., via the Louisville & Nashville and Nashville, Chattanooga & St. Louis Railroads. This is the old soldiers' route during the late war, passing through Murfreesboro (Stone River battlefield), Tullahoma, Bridgeport, and for miles in full view and around the base of Lookout Mountain; also the famous Moccasin Bend to Chattanooga; thence over the Western & Atlantic Railroad to Atlanta. The schedules are as follows: The last mail leaves Cincinnati at 11:30 A. M.; arrives at Louisville at 2:57 P. M.; Nashville, 8:58 P. M.; Leaves St. Louis 7:52 A. M.; Evansville, 2:12 P. M.; Nashville, 9:10 P. M.; Chattanooga, 1 A. M. Arrives at Atlanta 6:50 A. M. The Cotton States Flyer leaves Cincinnati 7:30 P. M.; arrives at Louisville 11:14 P. M.; Nashville, 6:50 A. M. Leaves St. Louis at 7:35 P. M.; Evansville, 1:25 A. M. Due at Nashville 7:10 A. M.; Chattanooga, 11:50 A. M. Arrives at Atlanta 4:00 P. M. The Atlanta special leaves Cincinnati 5:30 P. M.; Louisville, 9:30 P. M.; Nashville, 2:40 A. M.; Chattanooga, 7:30 A. M. Arrives at Atlanta 11:25 A. M., and is a solid train from Cincinnati to Atlanta. All trains have elegant day coaches and Pullman's finest sleeping-cars. HERMAN HOLMES, T. P. A., Medina, Ohio. JACKSON SMITH, D. P. A., Cincinnati, Ohio. C. P. ATMORE, G. P. A., Louisville, Ky.

CONVENTION NOTICE.

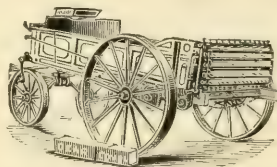
The annual meeting of the Illinois State Bee-keepers' Association will be held at the Statler Hotel, Springfield, Nov. 19, 20. The Odd Fellows of Illinois hold their grand encampment, beginning on the 19th, and we have it from their committee on railroads that they have secured open rates of a fare and a third—that is, a round trip ticket—is to be purchased at starting-point, anywhere in the State, for 1½ fare. The special meeting of our association will be held at Chicago, at the New Briggs Hotel, Jan. 9, 10, 1896. As this is the occasion of the National Cycle Show, we can get reduced rates to that meeting. Further particulars later. JAS. A. STOVE, Sec.

Bradfordton, Ill.

For \$350.00. One hundred 2-story hives complete for comb honey; bees and hives in good order. Inquire of **A. LEYVRAZ, Francis, Fla.**

KEMP'S MANURE-SPREADER.

13 YEARS ON THE MARKET. IMPROVED FOR 1895.



SPREADS any kind of manure in any quantity to the acre, and does it better than hand work, even if a man spends ten hours on what the machine will do in two minutes. Sent to any responsible party subject to approval, that will furnish satisfactory references or rating of responsibility. Illustrated catalogue free. **Largest and oldest manufacturers of manure-spreaders in the world.**

KEMP & BURPEE MANUFACTURING CO.,

Box No. 90, Syracuse, N. Y.

Please mention this paper.

**ROOT'S GOODS at
ROOT'S PRICES
FOR THE WEST.**

Order of us and save freight. Goods at wholesale and retail. A full line of Doveetailed Hives, Sections, Foundation, Extractors, and every thing else of the latest and best.

JOSEPH NYSEWANDER, Des Moines, Iowa.

Italian Bees and Queens. Untested queens, \$1.00; tested, \$1.25. Bees by the pound, \$1.00. Full colonies, \$6.00; nuclei, 2-frames, with queen, \$2.50; 1-frame, \$2.00; queens after Aug., 50 cents. B. P. and W. P. R. eggs for setting, 15 for \$1.00.

MRS. A. A. SIMPSON, Swarts, Pa.

USE **FUMA** CARBON-BISULPHIDE
TAYLOR'S
For killing Woodchucks, Prairie Dogs, Gophers and Rats, Insects in Grain, Seeds, etc. Shipped in 50-pound cans by the manufacturer. Write for pamphlet.

Edward R. Taylor, Cleveland, O.

In responding to this advertisement mention Gleanings.

HATCH CHICKENS BY STEAM—
With the **MODEL**
Excelsior Incubator.
Simple, Perfect, Self-Regulating. Thousands in successful operation. Guaranteed to hatch a larger percentage of fertile eggs at less cost than any other Hatcher. Lowest priced first-class Hatcher made. **GEORGE H. STAHL,**
114 to 122 S. 6th St., Quincy, Ill.



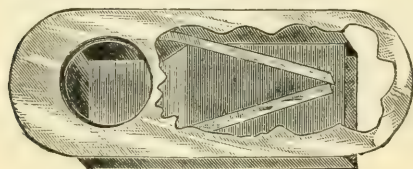
Circulars free. Send 6c. for Illus. Catalogue.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. **PAGE & LYON MFG. CO.,**
New London, Wis.
stfdb

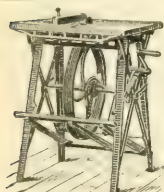
Please mention GLEANINGS. 21-8db

Advantages of Bee-Escapes.



No sweat steals down the heated cheeks and aching back of the bee-keeper as the result of standing in the hot sun plugging, blowing, smoking, and brushing bees; no time is wasted in these disagreeable operations; and no stings received in resentment of such treatment; the honey is secured free from black or even the taint of smoke; the cappings are not injured by the gnawings of bees; and robbers stand no show whatever. If there are any broken burr-combs they are cleaned up by the bees inside the hive, before the honey is removed. **Leading Bee-keepers use the Porter Escape,** and say that without a trial it is impossible to realize the amount of vexatious, annoying, disagreeable work that it saves. The cost is only 20 cts. each, or \$2.25 per doz. As in the past, this escape is manufactured by the Porters, but **THE A. I. ROOT CO.** are now the exclusive selling agents for this country. Order of your dealer or of

THE A. I. ROOT CO., Medina, Ohio.



Read what **J. I. PARENT, of CHARLTON, N. Y.,** says—"We cut with one of our Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address **W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.**

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to

THE A. I. ROOT CO.

Please mention this paper.

W. O. Victor, of Wharton, Tex., took

45,000 Lbs. of Honey in 1894.

He offers Italian Queens—good, old-style honey-queens—untested, first order, to any address, at 50c each. Also bees in any quantity; 450 colonies to draw from. **Root's goods constantly in stock.** Prices to suit the times. Buy near home, and save freight.

The Sir William Potato.



The photo-engraving above shows a peck basketful of **Sir William** potatoes; 14 tubers weighing 15 lbs. In my deld few weighed less than $\frac{1}{2}$ lb., and some ran as high as $1\frac{1}{2}$ lbs. Some of the good points of this remarkable new potato are as follows:

1. It is a **very heavy yielder.** Its yield this year, as far as dug, is about 200 bushels per acre on my rather thin soil, with extreme drouth from planting until August 6. Ten other good varieties with same chance are averaging about 100 bushels per acre. It is a thrifty grower from the start, and resists bugs and drouth and blight better than most other kinds.

2. It is **ideal in shape, color, and cooking quality.**

3. It is **medium-late.** Planted by May 1 it will usually mature before Sept. 1, **in time to follow with wheat;** a great advantage to many growers.

4. If the seed is large, and cut to one or two eyes (as I recommend for large seed), practically **all of the tubers** will be of marketable size. For three years on my farm it has shown a **less per cent of small potatoes** than any other variety.

I believe it to be the best all-round medium-late potato. I have tested it now three years before offering a pound for sale, and am ready to vouch for the above good qualities from personal trial. I have **never yet put my name to an unsuccessful thing and I guarantee satisfaction** to all who buy seed of me, cut it carefully to one or two eyes, plant it on good potato soil, and give it thorough tillage. I offer the seed at the following prices, which I think are **lower than so new and so valuable** a variety was ever offered before.

REDUCED PRICES.

[In new sacks or new largest-sized apple-barrels, f. o. b. at Hudson.]

FIRSTS, single bushel, \$1.10; 2 bushels, \$2.00; single barrel, \$3.00; 10 barrels, \$25.00.

In all cases it is better to order in barrels. I advise strongly against sacks, as the tubers chafe and bruise, and are liable to theft by exchange for common varieties in transit.

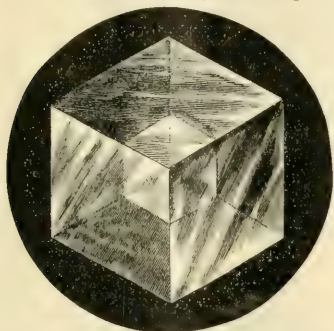
ORDER PROMPTLY to secure seed, as the demand is strong. All paid orders received up to December 31, or until the supply is exhausted, will be shipped early in April without extra charge, if received too late to ship with safety this fall.

Send orders to **The A. I. ROOT CO.** or to

W. I. CHAMBERLAIN, Hudson, Ohio.

PREMIUM LIST--CONTINUED FROM PAGE 834.

Dodecahedron Paper-weights.



Several years ago we made a special importation from Germany of 1000 of the beautiful glass paper-weights of which the above is a very poor representation. Nothing would be more appropriate for a bee-keeper, as it illustrates the mathematics of the honey-cell to perfection. It is such a beauty that anybody will be pleased and delighted with it. No matter which way you turn it, you will be charmed by new beauties. The above cut gives the actual size. When we found it in Chicago it was retailing at 50 cents; but buying 1000 of them we got them at a figure that enables us to sell them at 20 cents each, or 6 for \$1.00; one dozen for \$1.80. By mail, 3 cts. extra on one; 12 cts. extra on 6, or 20 cts. extra per dozen for postage, and packing to prevent injury. We will send one free postpaid for a new subscription to GLEANINGS with \$1.00; or for a new subscription, with your own renewal, with \$2.00, and 5 cts. for postage, we will send two.

Peerless Flour-Bin.

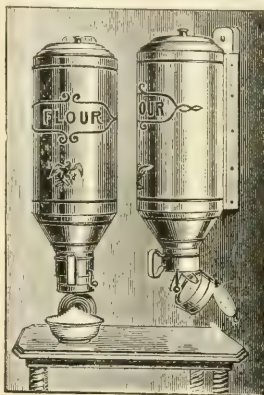


There are a number of flour-bins on the market, of various styles. This one possesses special merit. Some kind of bin is a necessity for keeping flour neat and clean. The cut of the Peerless shows the can cut away to illustrate the manner in which it works. The connection between the crank on the side, and the revolving piece in the bottom over the sieve, is a heavy coiled wire spring, making the mechanism very simple and strong, and easy to operate. A finger projects from the revolving disk, to keep the flour stirred on to the sieve. This bin, instead of being hung up like the Tyler, stands on a table or shelf, and the flour is sifted into the drawer from which you empty it as needed. Price, each,

crated for safe shipment, \$1.75. A crate of 6 for \$9.00. Price of one Peerless bin, with GLEANINGS, one year, \$2.50.

Tyler's Flour-Receptacle.

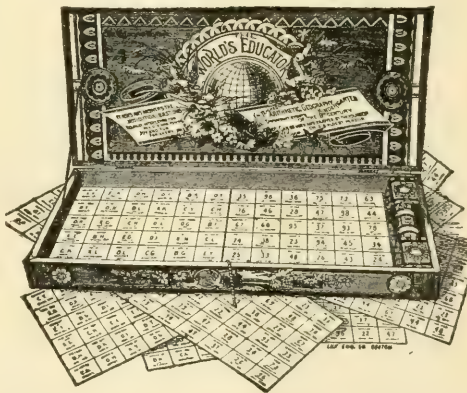
A Much-needed Household Convenience.



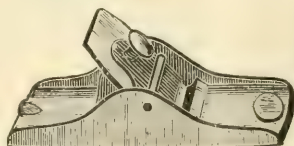
This is the most convenient arrangement for flour that we have ever seen. It holds just a 49-lb. sack of flour. It is to be hung on the wall just above your table. When you want some flour simply place your pan under it, open the lid on the bottom and turn the crank and you get your flour already sifted. It is simple, neat, and effective, and not expensive either. Price \$2.00 each, crated ready for shipment, or given

free for 8 subscribers, with 8.00.

THE WORLD'S EDUCATOR.



This game is a perfect treasure-box of knowledge and fun. It asks and answers the most difficult questions, and is equally adapted to both old and young. Amusement and education are most happily combined; 72 questions and answers on each card, and ten cards go with it. When the knowledge on these is exhausted more can be obtained. The box is handsomely lithographed. Size 15x7 inches. Price \$1.00. Postage extra, 25 cts., if sent by mail. Given for 4 subscriptions, with \$4.00, and 25 cts. extra to pay postage.



Iron Plane. At first glance you might take it for a toy plane; but if you try it on a board you will find it is a plane in reality. They will sharpen a lead-pen oil beautifully, trim up a wood-cut or electrotype, take the corners off a rough box, reduce the width of a board, and do it all in a workmanlike and finished manner; and when they need sharpening, the bit is taken out or adjusted securely, by simply turning a single screw with the finger and thumb. Price 15 cts. By mail, 6 cts. extra, or sent free postpaid for one new subscriber, and \$1.00.

ROGERS' SILVER-PLATED WARE.

The silver-plated ware we offer on this page is warranted to be equal to any thing made. In fact, the manufacturers claim that they will strip more silver than any other goods made, and represented as the same grade. Our prices, too, are lower than are generally made on goods of equal value, and we think you will find very few opportunities to get the same class of goods so low. The fork shown at the right, is silver-plated on nickel. It is sectional plate—that is, triple plated on the three points, where the wear comes, and costs no more than the triple-plated steel forks. Nickel silver is a much superior base to plate than steel, and these forks will outwear the triple-plated steel forks for that reason.

Round Medium Knives, triple plated on steel, with Round Medium Forks, sectional plate on nickel silver, same as described above, \$3.50 per dozen (6 knives and 6 forks); postage extra, 36 cents. Either **knives or forks alone** will be \$3.50 per dozen. Postage on knives, 44 cents per dozen; on forks, 30 cents per dozen.

Dessert, or Tea Knives, triple plated on steel, \$3.40 per dozen; \$1.70 per one-half dozen.

Dessert Forks triple plate, on German silver, \$3.50 per set of 6; or \$7.00 per dozen. Postage, one-half dozen, 10 cents.

Tea-spoons, triple plate, on German or nickel silver. Tipped pattern. Price \$3.50 per dozen. Postage, 10 cents extra per dozen.

Dessert Spoons, same as above. Price \$6.00 per dozen. Postage, 20 cents extra.

Table-Spoons, same as above. Price \$7.00 per dozen. Postage, 25 cents extra.

Tea-Spoons, single plate, on nickel silver. Price \$2.50 per dozen. **Table-Spoons,** \$5.00 per dozen. One-half dozen of any of these at dozen rates.

Butter-Knife, triple plate, on steel. Price 35 cents each. Postage, 3 cents extra.

Sugar Shell, triple plate, on nickel silver. Price 60 cents each. **Single plate,** 35 cents. Postage, 2 cents extra. If you order the above by mail, send 8 cents extra with each order, to register the package. We will not be responsible for the loss of unregistered mail matter.

Each subscription to GLEANINGS, accompanied by \$1.00, will count as 25 cents toward the price of any of the above articles of silver ware, provided at least half are new names.

TEA AND TABLE SPOONS.

We have these in all grades, from 5 cents up to \$5.00 a set for teas, and from 10 cents up to \$3.50 for tables. He who can not suit his needs from this list must be fastidious indeed. Remember, that the same number of table-spoons of the same grade cost just twice as much as tea-spoons; or, in other words, 6 table-spoons are the same price as a dozen tea-spoons.

Tinned Iron Tea-Spoons, 5 cents per set of 6; postage, 4 cents extra. These are excellent for picnics, where, if you lose them, the loss will be slight.

Tinned Iron Table-Spoons, 10 cents per set of 6; postage, 7 cents extra.

Tinned Steel Tea Spoons, 10 cents per set of 6; postage, 6 cents extra.

Tinned Steel Table-Spoons, 20 cents per set of 6; postage, 12 cents extra.

These are as strong as the best spoons, and resemble so nearly the triple-plated silver spoons that you could hardly tell them apart at first glance. They are tipped pattern.

Hartford Silver-Metal Tea-Spoons, 60 cents per set of 6; postage, 6 cents extra.

Hartford Silver-Metal Table-Spoons, \$1.20 per set of 6; postage, 12 cents extra.

German silver contains 18 per cent of silver, and the rest is alloy. This Hartford silver metal contains 25 per cent. These spoons are all the way through alike, and always wear bright. We have also dessert spoons and forks of this same metal as follows:

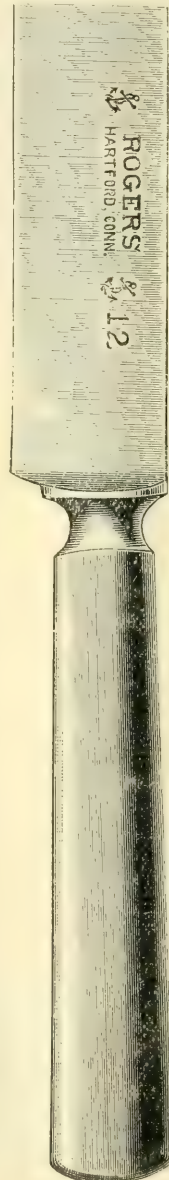
Hartford Silver-Metal Dessert-Spoons, 90 cents per set of 6; postage, 10 cents extra. **Forks** same price.

For still better spoons, see Rogers' silver-plated ware. To get any of the above goods as premiums, each subscription, sent in with \$1.00, will count 25 cents toward the price, provided they are at least half new names, and postage extra if sent by mail.

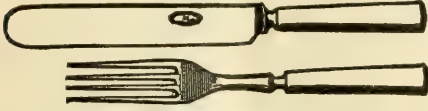
TABLE AND CARVING KNIVES AND FORKS.



Knives and Forks, Fancy double bolster. We have several styles, in ebony and cocco handles. Above cut



shows only one style. Finely finished. Usual price of these goods is about \$1.50 to \$1.75 per set. **Our price, \$1.00 per set.** Postage, 30 cents extra per set. Sent free for **4 subscribers**, with \$4.00, and 30 cents to pay postage.



Knives and Forks, nickel plated. These are made of steel, then coated with tin, and then nickel plated. They very much resemble the triple-plated silver knives and forks, and wear for years as bright as silver. Price, per set of 6 knives and 6 forks, \$1.50; by mail, 36 cents extra. Given free for 6 subscribers, postage extra.

Carvers for Thanksgiving and Christmas Dinners.



Swell-Handled Carving-Knife and Fork. This is the greatest bargain in the whole list. It has swell cocoa handle, capped and bolstered. This pattern of knife and fork can not be bought by dealers in cutlery from the manufacturer for less than \$1.10, and you will not find them retailed for less than \$1.50; yet we have bought a quantity from a man who had several cords of them, which he bought with a large stock at ruinously low prices. Our price is only \$1.00 per pair; or steel included for \$1.35; postage extra, 15 cts. on carvers, and 10 cents on steel. Given free, without steel, for 4 subscriptions, postage extra.

Bread-Knife, 8-Inch, a first-class knife. Price 35 cents. Postage, 8 cents extra. Sent free, postpaid, for 2 subscribers, and \$2.00.

Bread-Knife, 9-Inch Blade, rosewood handle: an excellent slicer. Price 50 cents. Postage, 8 cents extra. Given for 2 subscribers, with \$2.00, and 8 cents for postage.

Butchers' Steak-Knife. This is a tremendous big slicer; handle 5½ inches long, and the blade 12 inches, and 1½ broad. This makes an excellent bread-knife; and, in case of a combat with burglars, it is big enough to use as a short sword. It is made of best forged steel, and cost about 96 cents to produce it. They were bought among other goods at a bankrupt sale, and we offer what we have at 75 cts. each; 15 cents extra if sent by mail. We can not get any more when these are gone. Given for 3 subscribers, with \$3.00, and 15 cts. to pay postage.

Corrugated Bread-knife.



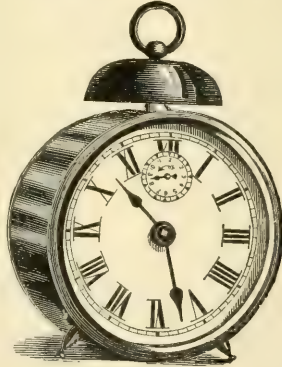
I presume all who have tried it agree that, for cutting bread, especially fresh bread and cake, nothing is equal to a knife with corrugated (or saw-tooth) edge. The Christy and Clauss knives have had a large sale. Both of these have a straight blade with corrugated edge, and it is not so easily sharpened as a straight edge. The knife we offer overcomes this difficulty and still retains the corrugated edge. Because the blade is corrugated when it is ground with a straight bevel on one side, it makes the cutting edge corrugated, and accomplishes the desired result. We are also able to offer these knives for less than the others. We will give one free for one new subscriber to GLEANINGS, with \$1.00, and 5 cts. to pay postage, and you may offer the rest of this year free to the new subscriber. If you send your own renewal also, you may omit the 5 cts. postage, and we will send you postpaid.

An Aluminum Thimble.



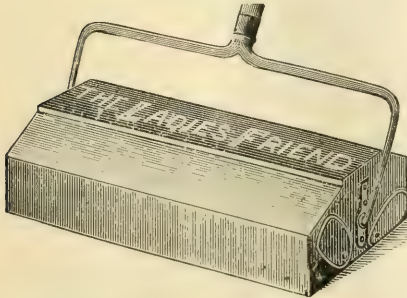
This is something that will not rust or tarnish. It is so light you would not know it was on your finger by its weight. It is very tough, and will wear almost indefinitely. Nothing could be more desirable to give to wife or daughter, or your best girl. We will sell the thimble at 6c. postpaid, or 5c. with other goods, 5c. per dozen. The bread-knife at 25c postpaid; or with other goods, 20c each; \$2.00 per dozen.

Nickel Alarm Clock.



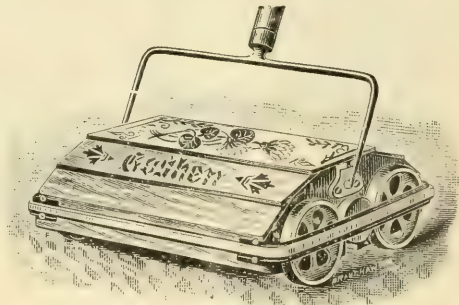
The adjoining cut shows our Early-riser alarm-clock. It is a marvel for the money. Only 75 cts., just half what we used to sell a similar one for. By mail, 15 cts. extra. Given free for 3 subscriptions and 15 cents extra for postage.

CARPET-SWEEPERS AT TWO-THIRDS REGULAR PRICES.



Ladies' Friend, Price \$1.50.

These are two of the most reliable sweepers made. The Ladies' Friend has two drive-wheels, while the Goshen has four. The latter therefore runs much easier. Mrs. Root has used a Ladies' Friend for 10 years, and does not want any other kind. The Goshen, you notice, has a rubber band around it to prevent it from marring the furniture should you run against it. No housewife who has carpets (and who has not?) should be without one

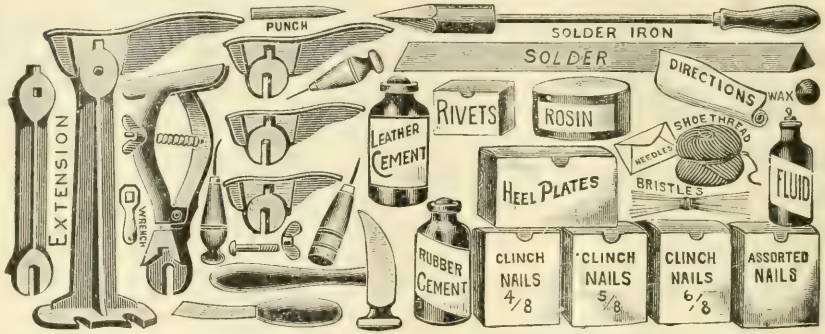


Coshen Sweeper, \$2.00.

of these sweepers, especially when they cost so little. You have no idea how much it lightens the labor of sweeping, to say nothing of the saving to your carpets. I don't know of a woman who has once got used to a good sweeper who would be without one for almost any price. The Ladies' Friend will be given for 6 subscribers, with \$6.00, and the Goshen for 8 subscribers, with \$8.00. They must be sent by express or freight alone or with other goods.

Home Repairing Outfit.

THE WHOLE KIT
OF 39 ARTICLES



WITH GLEANINGS
ONE YEAR \$3.25.

THE HOME REPAIRING OUTFIT NO. 1, PATENTED OCT. 8, 1895,

Consisting of the 39 first-class tools and materials shown in cut. Regular price, \$3.00. Sent with GLEANINGS one year for \$3.25. A new subscriber, with your own renewal and \$3.85, secures this outfit.

Home Repairing Outfit No. 2 is the same kit with the harness and soldering tools left out. Regular price \$2.00. With GLEANINGS one year, only \$2.50. A new subscriber sent with your renewal and \$3.10 secures outfit No. 2.

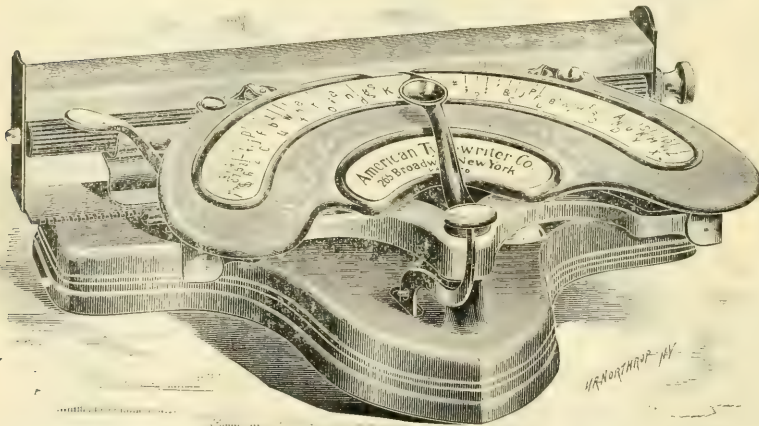
All these tools are full-sized; practical, neat, and cheap; not mere toys. They enable any person to do his own half-soleing, boot, shoe, rubber, harness, and tinware repairing.

Our improved Iron Lasts and Standard are one of the handiest tools you can have about the place. The Standard on this Outfit is made on the extension principle—that is, it can be used standing up at a bench, or on the floor while sitting in a chair. For use on a bench, the extension on top part of the Standard is omitted, making the height about 13 inches; while for floor use it can be instantly attached and the height adjusted to about 20 inches, making it just right for the lasts to be held between the knees when sitting in a chair, the base of the Standard resting on the floor.

The Iron Lasts are four in number, smooth and solid, 4, 6, 8, and 10 inches long, thus enabling one to half-sole all sizes of footwear. They are attached to the Standard by the use of a thumb-screw, which holds them in a perfectly rigid manner, so that they can not bound off or shuck around, as in the case of ordinary outfits.

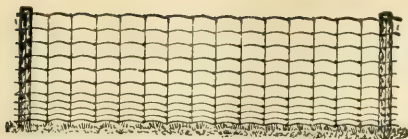
The Sewing-clamp is attached in the same manner, and this fact alone renders it the most practical clamp on the market. The jaws are thrown open mechanically by a coiled spring on the bolt. It can be used for filing saws, and in many other cases where a vise would be necessary.

No. 2 American Typewriter.



A durable machine which does very nice work more rapidly than you can write with a pen. Our price \$8.00, including GLEANINGS one year free. A typewriter is already a necessity in business requiring correspondence of only a moderate extent, and it is fast becoming a necessity in every business and almost every home. But the standard machines at \$50 to \$100 are beyond the reach of a great many people. We have been on the lookout for

a good cheap typewriter to offer our readers. When the American typewriter was brought out a year or so ago at \$5.00 or \$6.00 we got one to investigate it. We decided that it was not durable enough to be serviceable very long. The manufacturers have recently brought out the No. 2 at \$8.00, in which they have overcome the defects of the former one. It is now quite strong and durable, and we consider it a great improvement over the World typewriter which we sold a few years ago. It has 75 characters, including capitals, small letters, figures, punctuation-marks, and the various commercial signs. A line 8 3/4 inches long can be written on paper 9 inches wide. It is very simple, and easy to operate. A child can learn to write on it, and in a little while will write faster than you can with a pen. If you do not write plainly you especially need a typewriter. There are some people who write to us to whom we would almost be willing to donate a typewriter if they would use it. If we can not give you all a typewriter we will give you GLEANINGS one year if you order a typewriter at the regular price, \$8.00. It weighs, boxed, 6 lbs. Every other subscription besides your own, which you send us, will count 35 cents toward the price of the machine provided at least half or more are new names. For instance, if you send 3 new subscribers and 2 renewals, with \$11.25, you get the typewriter and your own subscription advanced one year. This, you see, leaves \$5.25, the cost of the typewriter after taking out \$6.00 for the six subscriptions.



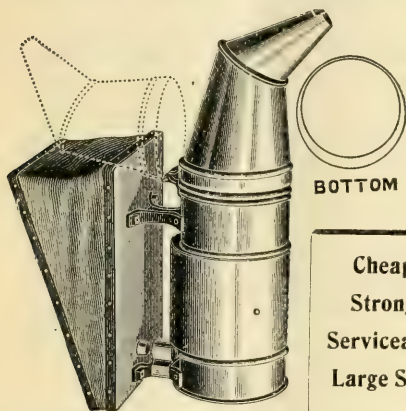
READY FOR THE RACE.

We are backing the "Only Elastic Fence" against "the Field." Watch the result!

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

In writing advertisers please mention this paper.

The New Corneil Smoker.



BOTTOM

**Cheap,
Strong,
Serviceable,
Large Size.**

JUST THE THING for those who want a first-class smoker at a medium price. Size of cup, 3 1/4 inches; curved nozzle, hinged so as to swing back; legs of malleable iron, secured by bolts. The blast is the well-known Corneil principle. Weight of smoker, only 20 ounces. Here is what one of our customers says of it:

The Corneil smoker is a Dandy with a big D. I have been using it to-day on the crossiest colony of bees I ever saw. I think I could drive a bulldog with it. S. R. AUSTIN.
Amityville, N. Y., Oct. 15.

Price \$1.10, postpaid, or 85c if sent by express or freight with other goods.

**THE A. I. ROOT COMPANY,
MEDINA, OHIO.**

MUTH'S HONEY-EXTRACTOR, SQUARE GLASS HONEY-JARS.

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "Practical Hints" will be mailed for 10c in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.

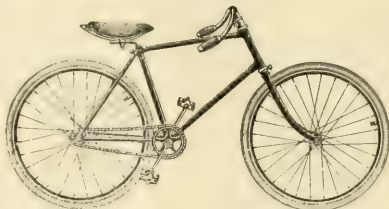
In responding to this advertisement mention GLEANINGS

WOVEN WIRE FENCE

Over 50 Styles! The best on Earth. Horse high. Bull strong. Pig and Chicken tight. You can make from 40 to 60 rods per day for from 14 to 22c. a Rod. Illustrated Catalogue Free. KITSelman Bros., Ridgeville, - Indiana.

Please mention this paper.

Bicycles



I have done an extensive business in bicycles this summer, and have now on hand a number of second-hand bicycles, taken in trade or used as samples. Either these or new bicycles I will sell for the lowest cash prices, or will take honey or beeswax in exchange. Send for list.

J. A. GREEN, Ottawa, Ill.

Headquarters in Missouri For Root's Coods.

Can supply you with all the fixtures used in an apiary. Best goods at lowest prices. Catalog free. JNO. NEBEL & SON, High Hill, Mo.

A Rich Dinner Can be Had by Using the NO-BURN ROASTER,

which is made of materials that soften the heat, cooking whatever you bake or roast, with a heat something like steam or hot water, which allows nothing to burn or dry up; but, with absolutely no attention, whatever is cooked comes out juicy, rich, and very tender, and all the nutriment saved.

It will Make its Price

once a month in making more nutritious food, and will save its price nearly as often by not scorching or drying it. Nothing ever made like it before. It will sell to every family, if properly introduced. We want agents of either sex, and will guarantee big success if they do their part. Write for particulars.

J. K. PURINTON & CO., Des Moines, Ia.

Please mention this paper.

Promptness is What Counts.

Honey-jars, Shipping-cases, and every thing that bee-keepers use. Root's Goods at Root's Prices, and the Best Shipping-point in the Country. Dealers in Honey and Beeswax. Catalog free.

**WALTER S. POWDER,
102 Massachusetts Ave., Indianapolis, Ind.**



CASH FOR BEESWAX

Will pay 27c per lb. cash, or 29c in trade, for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 32c for best selected wax. Old combs will not be accepted under any consideration.

Unless you put your name on the box, and notify us by mail of amount sent, we can not hold ourselves responsible for mistakes. It will not pay as a general thing to send wax by express.

THE A. I. ROOT CO., Medina, O.

W. O. Victor, of Wharton, Tex., took

45,000 Lbs. of Honey in 1894.

He offers Italian Queens—good, old-style honey-queens—untested, first order, to any address, at 50c each. Also bees in any quantity; 450 colonies to draw from. Root's goods constantly in stock. Prices to suit the times. Buy near home, and save freight.

HONEY COLUMN.

CITY MARKETS.

PHILADELPHIA.—*Honey.*—Honey has advanced in this market, with prospect of still higher advance. Comb honey sells quickly, and pure white-clover extracted sells on sight. We quote comb, dark, 10@11; choice, 14@15; fancy, 16. Extracted, 5@6; New York white-clover, 6½; western white-clover, 10. Beeswax, 27.

Nov. 23. WM. A. SELSER,
No. 10 Vine St., Philadelphia, Pa.

MILWAUKEE.—*Honey.*—The demand for comb honey is not large or urgent. The supply is very fair, and generally of good quality. The shipments come forward in general good order, showing an improvement in putting up and handling the sweet. Extracted honey, especially the white, is in small supply. We quote comb honey as follows: Best quality, 1-lb. sections, 15@16; second quality, 14@15; third quality, 12@13. Extracted, white, in barrels and kegs, 7½@8; dark or amber 5@7. Beeswax, 20@25.

Nov. 20. A. V. BISHOP & Co.,
Milwaukee, Wis.

KANSAS CITY.—*Honey.*—We quote white comb honey at 13½@14; amber, 12; dark, 10. Extracted, 4@7. Beeswax, 20@25. Demand good for honey.

Nov. 21. HAMBLEN & BEARSS,
Kansas City, Mo.

ALBANY.—*Honey.*—Buckwheat comb honey is coming forward very freely, and stock accumulating so that prices are less firm at 9@10. Clover continues scarce, and sells on arrival at 13@15 for good quality; No. 2, 11@12. Extracted very quiet; light, 6½@7; dark, 5½@6.

Nov. 23. CHAS. McCULLOCH & Co.,
Albany, N. Y.

DENVER.—*Honey.*—There is a little better demand for honey in our market, but quotations not much changed. We quote No. 1 comb in 1-lb. sections suitable for our cartons, 10@11½c. Extracted, No. 1 white, in 60-lb. cans, two in a case, 5@6c. Beeswax, 20@25c.

Nov. 22. R. K. & J. C. FRISBEE,
Denver, Col.

BOSTON.—*Honey.*—We quote our market on comb honey at 13@15, with a fair supply. Extracted, 5@6. No demand for buckwheat honey in this market, so can not advise shipments here.

Nov. 21. E. E. BLAKE & Co.,
Boston, Mass.

DETROIT.—*Honey.*—Best white honey is selling at 15; other grades, 12@13. Extracted, 6@7. Beeswax, 26 for prime yellow.

Nov. 21. M. H. HUNT,
Bell Branch, Mich.

KANSAS CITY.—*Honey.*—The demand for comb and extracted improved; prices about the same. We quote No. 1 white 1-lb. comb, 13@14; No. 2 white 1-lb. comb, 12@13; No. 1 amber 1-lb. comb, 12@13; No. 2 amber, 1-lb. comb, 10@11; dark, 8@10. Extracted white, 6@6½; extracted amber, 5@5½; extracted southern, dark, 4@4½. Beeswax, 22@25.

Nov. 21. C. C. CLEMONS & Co.,
Kansas City, Mo.

BUFFALO.—*Honey.*—Honey market is quiet; fancy in light supply, and wanted at 16@17; choice, 14@15; No. 2 white, 11@12. Buckwheat, 8@10. Beeswax, 25@30.

Nov. 20. BATTERSON & Co.,
Buffalo, N. Y.

CHICAGO.—*Honey.*—There is little change in the market as compared with recent quotations. The bulk of the offerings in comb is not strictly white; and such sells at 12@13; the Middle and Eastern States, white to fancy, 14@15; yellow comb, 9@10; dark comb, 8@9. Extracted, 4½@7, according to grade. Beeswax, 28@30.

Nov. 20. R. A. BURNETT & Co.,
163 So. Water St., Chicago, Ill.

CINCINNATI.—*Honey.*—There is a fair demand for honey, with a bountiful supply. Comb honey sells at 12@15, for the best white, in a jobbing way. Extracted honey brings 4@7 on arrival. There is a good demand for beeswax at 22@27 for good to choice yellow on arrival.

Nov. 8. CHAS. F. MUTH & SON,
Cincinnati, O.

CLEVELAND.—*Honey.*—Our market is not quite so good as when we last quoted you on honey. We quote No. 1 white comb, in 1-lb. sections, 14@15; No. 2 white, 12½@13; buckwheat, 10. Water-white extracted, 7; amber, 6. Beeswax, 25.

Nov. 20. WILLIAMS BROS.,
80 & 82 Broadway, Cleveland, O.

NEW YORK.—*Honey.*—We have a good demand for white comb honey, all styles, and it finds ready sale at 14@15 for fancy, and 12@13 for second grade. The demand for buckwheat comb is rather limited, and has fallen off considerably. The supply is large and the market shows a downward tendency. We quote pasteboard boxes and glassed, 10; unglassed, 9@9½. Extracted is not moving very fast, with plenty of supply, especially from California. We quote California, 5½@6; white-clover and basswood, 6; southern, 50@55 per gallon, according to quality. Beeswax is in good demand, and firm at 29@30. No demand for extracted buckwheat.

Nov. 22. HILDRETH BROS. & SEGELKEN,
28 & 30 West Broadway, New York.

WANTED.—To sell quantity lots of fancy comb honey. Also to sell water-white extracted honey in 60-lb. cans.

B. WALKER, Evart, Mich.

ALFALFA HONEY, very white, thick, and rich. Two 60-lb. cans at 7c. Same, partly from cleome (tinted), 6c. Samples, 8c.

OLIVER FOSTER, Las Animas, Col.

ALFALFA IN ARIZONA.—We will sell you alfalfa honey F. O. B. Phoenix at 4½c in 1000-lb. lots or more. Less than 1000 lbs. at 5c in five-gallon cans. Car lots a specialty.

J. P. IYV,
Secretary Bee-keepers' Association,
Phoenix, Maricopa Co., Arizona.

FOR SALE.—1200 lbs. of honey, in 60-lb. square cans, 6½ cts. per lb., f.o.b. cars here. Sample by mail.

R. H. BAILEY,
195t Ausable Forks, Essex Co., N. Y.

Extracted honey in barrels at 6½ cts., or in 60-lb. pails at 7c.

CHAS. DADANT & SON,
Hamilton, Hancock Co., Ill.

HEDDON'S HIVE.

Why it is best of all, and all about how to make and use it, in a 22-page pamphlet, free on application. Address

**James Heddon,
Dowagiac, Mich.**

*In responding to this advertisement mention GLEANINGS.

Dovetailed Hives.

Sections, Extractors, Smokers, and every thing a Bee-keeper wants. **Honest Goods at Close Honest Prices.** 60-page catalogue free.

J. M. JENKINS, Wetumpka, Ala.

YOUR CATALOGUE. Let us print it. Complete facilities, neat and artistic work, moderate prices. Send sample for estimate.

S. C. WATTS, Clearfield, Pa.

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CONVENTION NOTICE.

The Wisconsin State Bee-keepers' Society will meet Feb. 6, 7, 1896, in the Capitol building, Madison. Program later.
N. E. FRANCE, Sec., Platteville, Wis.

Wants and Exchange Department.

Notices will be inserted under this head at one-half our usual rate. Advertisements intended for this department must not exceed five lines, and you must say you want your advt in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchange. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 c. a line will be charged and they will be put with the regular advertisement. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange 26-in. planer, power scroll saw, all iron; tenoner, and mortiser, for portable sawmill, or other wood-working machinery. Will give a bargain for cash.
GEO. RALL, Frenchville, Trempe Co., Wis.

WANTED.—To exchange foundation-mills and honey-extractors for honey or wax.
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WANTED.—To exchange 200 colonies of bees for anything useful on plantation.
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WANTED.—To exchange safety bicycles, Barnes No. 4½ lathe for metal work, Odell type-writer, for honey, beeswax, or gasoline or kerosene engine.
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WANTED.—To exchange Japanese buckwheat for bee-keepers' supplies or fdn. mill.
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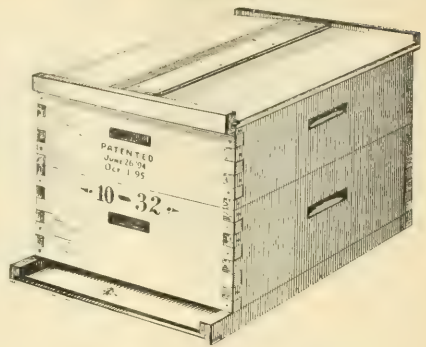
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In responding to these advertisements mention this paper.



Vol. XXIII.

DEC. 1, 1895.

No. 23.

STRAY STRAWS

FROM DR. C. C. MILLER.

CELLARED my bees Nov. 13. Oh, but they're heavy!

LOTS OF FUN dreaming over what big things the bees will do next year.

SHALL I HAVE the pleasure of meeting you at the Chicago convention, Jan. 9, 10? [Yes.—Ed.]

WILL THE URBANE EDITOR of GLEANINGS kindly inform me whom I am likely to meet from Medina at the Chicago convention? [E. R. R. expects to be present.—Ed.]

NEVER FORGET that bees can stand more cold with good air than with bad. So can you or any other animal.

THE LINDEN, according to an article in Gravenhorst's *Bienenzeitung*, yields well only about four times in 26 years. Better get some American lindens.

FORMER ENTHUSIASM will come back through the meat diet, says Ernest, page 861. If some people only got their former enthusiasm they wouldn't be very enthusiastic.

FOUNDATION with wood base $\frac{1}{8}$ inch thick is favorably mentioned in Gravenhorst's *Bienenzeitung*. For extracting it has the advantage that no wire cloth is needed in the extractor.

PART OF MY BEES will be wintered in cellar this winter, the rest outdoors. Number in cellar, 157. Number outdoors, 1. [Fudge! only one outdoors? Why don't you try more?—Ed.]

THESE STRAWS are shipped from the Illinois State Bee-keepers' convention at Springfield, some being written in the \$4,500,000 capitol building. Small attendance, but lively interest.

WHY IS IT that bees get lazy in a little while when working on feeders, and keep up a life-long interest in flowers? Would they keep the same interest in the feeders if they traveled the same distance to them?

W. K. BALL, p. 864, wants his frames to

"stick" together so he can handle colonies by the hive. But if I can have my frames solid without any "stick" I don't want any "stick" in mine.

I'M NOT GOING to California. On p. 862 it is stated the average annual yield for 20 years is 7 pounds! Now, don't tell me that "70 pounds" was in all copies but one. I'm reading Mr. W. J. Finch's copy.

GRAVENHORST says that a box-hive man, or, rather, a straw-hive man: from 50 colonies took 5400 pounds of honey and 60 pounds of wax, and increased to 200. Then he naively remarks, "Pity that such cases are so rare."

THAT SERIES OF LESSONS now running in the *Southland Queen*, mentioned p. 865, is good, and is copied from the back numbers of the *American Bee Journal*. [This is a surprise. We turn to the Atchleys for a reply to this charge.—Ed.]

GRAVENHORST cherishes some hope that *apis dorsata* may yet prove an acquisition. He thinks there is not so much dissimilarity between it and the common bee but that a cross is possible. [Frank Benton says it is impossible.—Ed.]

ROUND STEAK, according to p. 861, comes, not from the shoulder, but from the "flank." What kind of "round" do you have in Medina, anyhow? Didn't you mean you get it from the "shank"? [That was a typographical error; it was corrected.—Ed.]

ALTHOUGH BEES are in cellar, I expect to keep doors and windows open day and night for some time—as long, anyhow, as keeping them open doesn't bring the temperature of the cellar below 40°. When it goes below that I'll shut up and keep at 45° or more.

HEATHER HONEY is so thick that as yet it has never been emptied by the extractor. One of the live questions at the present time in Germany is as to some machine or management by which it may be extracted, and the sturdy bee-keepers of that land are hopeful.

WHO FIRST INVENTED inoculation, or the plan of transferring a worker-larva to a queen-

cell? Pastor Weygandt, of Germany, practiced it in 1879. Was it known as long ago as that on this side the water? [We practiced it as early as 1880, I remember.—Ed.]

BADLY CHANGED. "Why, my dear Schultz, how are you? I haven't seen you for so long! but, dear me! how you have changed!"

"Excuse me; my name is not Schultz."

"My gracious! has your name changed too?"

DZIERZON, the German Langstroth, who invented movable combs in Germany, never allowed the advisability of end-bars and bottom-bars until the advent of the extractor. He used merely a top-bar; and when he wanted to remove a comb he cut it away from its side attachments with a knife.

THE BEE-KEEPER'S YEAR, says Lebrecht Wolff, in Gravenhorst's *Bienenzeitung*, does not begin in spring, nor Jan. 1, but Oct. 1. That's when I start a new record-book each year, and about the first entry is hauling home the bees from the out-apiary. Each volume of *Deutsche Illustrierte Bienenzeitung* begins, not Jan. 1, but Oct. 1.

TEMPERATURE alone will not decide when bees will fly. If badly in need of a flight they may fly at 40°, whereas they might stay quietly in their hives at 60° if there were no pasturage and they had not been long confined. They'll fly at a lower temperature in bright than in cloudy weather; and when honey is yielding than when nothing is to be had.

I WONDER WHY it is that in Germany heath-er honey brings lower price than clover, and in Scotland higher. [It's all in the taste, doctor. Some people think Limburg cheese very delicious, and others can't bear to have it in sight. But, say; in York State there are not a few who think buckwheat honey far superior to any white honey ever produced.—Ed.]

SWEET CLOVER. On page 846 the footnote says my failure with that piece of sweet clover was because "the seeding was too heavy." You're off, A. I. Not a plant was crowded. I've the rankest kind of growth this year, with heavier seeding; but the seed this year was *plowed under*. The failure was in soft ground, with shallow seeding, and the young plants shaded with a crop of oats—a bad combination.

AUSTRALIAN BEES have been successfully taken to England. An account in *British Bee Journal* says they are about one-third the size of the common house-fly, and they seem to be of value only as a curiosity. Can't sting, but bite, and die at a temperature below 50°. [They are probably much the same as our stingless bees of Mexico and the West Indies.—Ed.]

BOTTOM-BARS of wire have lately been mentioned as something new. I find them spoken of by Dzierzon, in 1875, as the invention of a

Danish bee-keeper. Dzierzon favored the use of wire for both bottom-bars and end-bars for extracting-combs. [I should rather suspect that the wire would prove to be no barrier—the bees would build the combs right past them as if they were not there at all.—Ed.]

AS LONG AS 20 years ago, unqueening colonies during the honey-harvest was practiced in Germany. I think it has gone out of use now. Dzierzon questioned the good wintering qualities of a colony that had been unqueened. [It is practiced to a considerable extent in York State, and with good results. One of our neighbors unqueens just before the harvest, and pronounces it a success; but it is a "lot of work," he says.—Ed.]

DO LAYING WORKERS put more than one egg in a worker-cell? They put several in a drone-cell, and a whole pile in a queen-cell; but I don't remember seeing more than one in a worker-cell. My assistant thinks, however, that I forget. When no drone or queen cells are present I've seen them make as regular work as a queen. [I think your assistant is right. I am quite sure I have seen a plurality of eggs from laying workers in a worker-cell.—Ed.]

IF ANY ONE knows any objection to having end-bars and bottom-bars the same width as top-bars, with $\frac{1}{4}$ -inch space between, will he please arise and state the objection? [It would be all right to have end-bars the same width as top-bars; but bottom-bars I should not want to exceed $\frac{3}{8}$ inch in any case. About $\frac{3}{4}$ inch wide by $\frac{1}{4}$ inch thick seems to give us the best results. If narrower, the bees build the combs, in some cases, clear past them, and fasten on to the next set of frames below. If wider than $\frac{3}{4}$ inch, there is almost sure to be a useless bee-space between the bottom edge of the comb and the bar. Unfortunately there is no width or thickness that obviates completely either of the above-mentioned difficulties.—Ed.]



THAT MOOTED HIVE QUESTION.

A CLEAR STATEMENT OF THE CONDITIONS UNDER WHICH THE EIGHT-FRAME LANGSTROTH MAY OR MAY NOT BE LARGE ENOUGH.

By R. C. Aiken.

Much has been written about "the best size of hive." Some of it has been guesswork, or at least without any clear conception on the part of the author. It is not enough to know that a few eight-frame hives, as compared with an equal number of ten-frame, or *vice versa*, gave more surplus than the other.

First, the hive must be large enough to hold sufficient stores and accommodate the colony. To illustrate: Here we have no honey to speak of from July or August till June. Sometimes September will give a living, and sometimes not. At times in April and May a little is gathered and at once used, but *never* added to store. The bees will fly more or less every month, and much in fall and spring, and breeding must start early to keep up the colony, or they perish in early spring from lack of numbers. In March, April, and May, and usually the first half of June, brooding goes on as rapidly as the strength of the colony will permit, provided the old stores are abundant, consuming much honey. I count on about 40 lbs. average as necessary, so that, as a rule, an eight-frame hive is not large enough unless *solid full* of honey—no empty combs on which to cluster. So we must use a ten-frame hive, or carry a stock of feed for use in the spring.

The flow here opens about June 15th to 25th. In five years with from 150 to 300 colonies I have found that I can not get an average of more than about six to seven combs of brood by June 15th; though with care to have all queens good we no doubt might average seven or better. Some colonies with feeble, poorly bred, crippled, or aged queens will get but three to five combs of brood, while the best queens will get seven to nine combs full. Shortness of stores, or scarcity of bees to care for brood, will also cause the colony to fall short in amount of brood. So, with good wintering and plenty of stores, we can count on having six to seven combs of brood June 15th; and as a few queens will do 'extra, filling eight to ten combs, the eight-frame would not be large enough unless we took from the strong and gave to the weaker.

I have no doubt that where 20 to 30 lbs. of old stores is sufficient for winter and spring, and where the brood is equalized by the apiarist, that the eight-frame hive will do very well. Nor do I doubt that the smaller hive will increase the disposition to swarm in general. If there has been a complete dearth of honey from the fields, and if the stores are well consumed and the colonies strong, the large hive will be first to swarm because it has the most old honey; but if all have *plenty of stores*, the small hive will cast swarms first.

I contend that the large hive, with its abundance of honey, will bring the largest colony. One condition, however, will make the small hive equal to the large in the quantity of bees reared; and that is, a constant supply of nectar coming in, sufficient to keep up the needs of the colony. Talk as we will about size of hives, and feeding, one thing is certain—if we get the best results in breeding we must not stint the colony in stores; and the locality that will not furnish it from the fields must fall back on old stores or the sugar-barrel.

Now, according to the foregoing it appears that in *poor* to *fair* seasons for brood-rearing, the eight-frame hive will accommodate all brood and necessary stores when a living can be had from the fields from four to six months of the year. In fair to good seasons for brooding, the apiarist may need to *equalize* brood to give the best queens room, and some colonies may breed so much that a shortage of nectar may put the colony in a starving condition, which, if it occurs *any time* within six or eight weeks of the opening of the flow, ruins that colony for that flow. The hive that is big enough one season may not be the next.

The rapidity and duration of the flow also has a bearing on the question. Whether the hive be large or small, if it be full of bees we expect good work. Should the flow be slow and "long drawn out," i. e., thirty to sixty days, a contracted hive will *force* the bees to the sections sooner (this does not apply to those run for extracted unless they have their combs to build), and will result in more section honey, while the brood-chamber will be filled with brood to the exclusion of winter stores; and, in case of extracting with full sets of combs, will leave the colony with nothing but brood and bees. If the flow comes with a rush, there will be but little difference in the quickness with which they enter the sections, and little difference in the total yield. The difference will be mainly in the amount of the extra combs in the brood-chambers, *provided, however, these combs were empty when the flow came; and if they were empty, there must have been more honey converted into bees in the large hive*, consequently more honey gathered.

Here, the difficulty is not in the hive being large enough in which to rear a strong colony of bees, for I can not get an average of over six to seven combs of brood by the harvest time, but the constant danger of short rations at the most critical time. The small hive will hold the brood, and the bees can pile on the outside. If eight frames of stores and the incoming nectar will *surely* keep the colony from *even feeling the need of economizing*, it is large enough to give good results; but if it will not do this it is too small.

IMPORTANCE OF STRONG COLONIES UNDER ALL CIRCUMSTANCES.

Some write as though a colony could get too strong. How it is possible to get one too strong without doubling, I can not understand. I know that, in poor seasons, only strong colonies will do well, even in getting winter stores. In a *fair* season the strong colony will outstrip the average colony; and in a *good* season the strong colony must certainly do the best, for surely two pounds of bees can and will gather more honey than one pound. I have never been able to believe that apiarists are able to get colonies so strong that they refuse to work.

I admit there is a little more energy in proportion to numbers when the energy is necessary to get the brood-nest into shape; but this does not apply to the colony already in prime strength. I can always get more and better work in the sections when I have colonies so strong that they *must* occupy the super. If the flow comes very freely while it does last, we do not notice it so much; but when the gain is one to two, and even three pounds a part of the time, per day, it is almost impossible to get *even reasonable* work in sections with a colony that has not swarmed; while the one that swarms will do almost nothing in sections; but two colonies put together in one hive the bees and enough brood to *fill* the hive will do fair to good work. This year our flow began June 20. My scale-hive colony was stronger than the average, and was not allowed to swarm. It is a ten-frame hive. The gain from June 20 to July 15 (the extent of the flow) was an average of $2\frac{1}{2}$ lbs. per day. The best day's work was 6 lbs. This colony gave about 25 sections. Many other average colonies in nine-frame hives, and a few in eight-frame, gave from nothing to about one super, the majority not giving ten good sections. In one case I put the force of two colonies in one nine-frame hive, and got two 28-section supers. Another colony on nine frames had the forces from two other colonies added, and gave three 28-section supers. All the evidence goes to show that, if I had *doubled the forces* of all, preserving the old stock in the original hives, I should have had as many colonies in the end, and about doubled my surplus.

I could also have doubled the surplus by contraction, but at the expense of stores which I *must have*. In twenty years of practice, in which I have always kept at least a part of my colonies from swarming, that I might have the advantage of the strength, I am as firm as ever in the belief that we can not get our colonies too strong. A very strong colony *may* do as well, and *sometimes* a little better, when in two average hives, if the flow be very good, coming in very rapidly; but in a slow and moderate flow, the stronger the colony the better the results.

The apiarist who has intelligence enough (knowledge of the business) to know how much brood he can get by the opening of the harvest with *plenty* of feed within and without, will know the size of hive he needs. The small hive will the more often fail *because of shortness of stores* than will the large one because of *too much room* for storage in the brood-combs.

Loveland, Col., Nov. 11.

EIGHT-FRAME HIVE FOR WISCONSIN.

WHY IT IS LARGE ENOUGH, AND WHY BETTER THAN THE TEN-FRAME SIZE.

By F. L. Murray.

Mr. Editor:—I see you ask in your Nov. 1st issue for bee-keepers to give you the size of hive they are using in their locality, in order to make a map showing where different-sized hives are used. I have been keeping track of the hive discussion with great interest, and I think the map scheme would be a good thing, as it would give a better idea than any thing else yet spoken of in regard to large or small hives, as I believe the location has more to do with the hive question than any thing else.

In my location I do not want any other hive than the eight-frame Dovetailed. I have been using them for a number of years, and, until I see something more definite than has yet been published in favor of the ten-frame (or larger) hive, I will continue to use the eight frame. By preferring the smaller hive I do not claim that eight frames give sufficient room for all queens, for I have had queens that would keep twelve and fourteen frames full of brood, so you see a ten-frame was not large enough.

Now, in working for comb honey (and I work almost exclusively for that), I put a second hive-body, full of drawn combs, about May 1st, on all strong colonies. That makes a sixteen-frame hive, and (I have had no trouble about queens refusing to go up into the upper story when crowded for room below) that gives all colonies a chance to build up strong for the honey-harvest which begins here about June 10, from white clover. At the beginning of the honey-harvest I take off all those second stories. I fill up the under story, or hive proper, with brood, of course being sure the queen is below; and if there is any more brood than will fill up the hive I strengthen up weak colonies with it, or make increase. In this way I confine my working force on eight frames; and by putting on the surplus-arrangements as soon as the second story is taken off I always get my share of the honey if there is any to get. I do not want any larger hive than the eight-frame, for comb honey, for eight frames give all the brood room I want after putting on the surplus-arrangement; and if I used a larger hive I should have to use dummies; and I do not like to use them, for various reasons. I also find, when wintered in the cellar, the above hive gives all the room necessary for winter stores; and an eight-frame hive full of bees makes a *pretty strong colony*, and the eight-frame hive is much handier to lift in and out of a cellar. When bees are kept where the person keeping them has too much other work to do to attend to them properly, I think a large hive would be preferable; but for a practical bee-keeper who

If you would like to have any of your friends see a specimen copy of *Gleanings*, make known the request on a postal, with the address or addresses, and we will, with pleasure, send them.

understands the proper manipulation of bees, the eight-frame hive is about right here.

Calamine, Wis.

[You and friend Hatch do not agree, although you are both of the same State. You will remember that, in the first place, I too, in answer to him, took the same or nearly the same position in favor of the smaller hive. While locality has much to do with this question, it is evident that the individual tastes and preferences of men, even in the same locality, have much to do with it also.—Ed.]

AN OPEN LETTER TO DR. MILLER.

THE QUEEN THAT SULKED; HOW TO GET
QUEENS TO OCCUPY ONE OR MORE
STORIES.

By Delos Wood.

Dr. C. C. Miller:—I have just read your article on page 739, Oct. 1st GLEANINGS. In your closing paragraph you intimate, as usual, that you "don't know," and ask for more light. Perhaps I can lend you a candle for a few minutes. You complain that, when you took the queen out of the story she was laying in, and confined her to another with empty combs, she "sulked and would not lay." Now stop right here and think what you did, and then, instead of blaming the queen for "sulking," you will probably ask Miss Wilson to make you a paper cap such as I had to wear sometimes in my schooldays.

When you changed your queens you took them away from the nurse bees, and left them with only the old field-workers, and the queens were *compelled to sulk*. Next year, when you want to put the queen in confinement, take two combs of unsealed larvæ with the adhering bees, and put them into the story you put the queen in, and give them the other six combs empty; and if the queen *sulks*, send the paper cap to me and I will wear it.

At one time I thought I knew all about bees; but I have had 30 years' experience since then, and find, like yourself, I am compelled many times to say, "I don't know."

I work entirely for extracted honey, and tier up as many stories as may be required, always using the same-sized story and frames. I use loose hanging frames. My hives are 16¼ in. long, 13½ wide, 10½ deep, inside measurement. I use 9 frames with loose bottoms and tops. I always work them two stories high, and tier up more if unable, from any cause, to extract as soon as needed. My queens *prefer* the top story, and I have never had a queen that would fill more than two stories. Empty combs below will not prevent swarming in my "locality."

This season I have had two colonies with two laying queens in each. One of them I found in April, and they were still working side by side in September, and may be there now for all I know to the contrary.

NOT SIGHT BUT PROOF OF A QUEEN'S PRESENCE NECESSARY.

Miss Wilson objects to tiering up because it is harder to find the queen. What does she want to see the queen for? *Proof* of her presence is all I want. Queen-breeders, of course, will keep the queens for sale in a hive easy of access, but not so with the honey-producers. Of course, you will not expect her to lay in old combs that have been out of the hive all winter.

Santa Barbara, Cal., Oct. 12.

[Dr. Miller replies:]

I don't know whether I'm willing to put on that cap or not. I have some doubts about it. Of course, any one knows the queen will lay wherever two combs of unsealed larvæ with adhering bees are put. That's about equivalent to saying she'll lay in the brood-nest, for it's simply transferring a part of the brood-nest. But why won't she do it without the brood and adhering bees?

You say, when I changed my queens I "took them away from the nurse bees, and left them with only the old field-workers." Didn't either. I put the queen alone in the empty chamber above, without any bees, an excluder between. There was nothing to hinder the nurse bees going up any more than the fielders. The bees did go up, plenty of them, and for days that queen stayed up there sulking with the chamber full of bees. Now do you know that those bees that went up were all field bees and not nurse bees? What call have worker bees to go up into an empty story any more than nurse bees? Isn't it rather the other way? When the bees go up of their own accord to enter the surplus-chamber, is it the field bees or the nurse bees that go up first?

It looks a little as if the bees had said, "There's no nectar coming in, and we'd best do nothing in the way of enlarging the brood-nest." But when the brood had hatched out below, why did they remain without any brood rather than start in a new place? Would they not have acted differently if honey had been yielding?

If Miss Wilson has any good reason for wanting to see queens, she can give it herself; but you know that women are generally supposed to have a great deal of curiosity.

C. C. MILLER.

[There is one point in the last paragraph of friend Wood's letter that I am interested in. It is not new, but it is one that needs far more attention than it usually receives; viz., accepting the proof, as friend W. puts it, of a queen's presence, rather than going to, oftentimes, a large amount of trouble to get a view of her. I never think of looking for a queen (and I don't suppose Miss Wilson or the doctor does either) when I have seen one good comb with brood and eggs, properly distributed. Beginners, and perhaps some of the veterans in some cases, knock quite a little slice off their profits from honey by hunting for queens when it is not necessary. Of course, there are times when it is

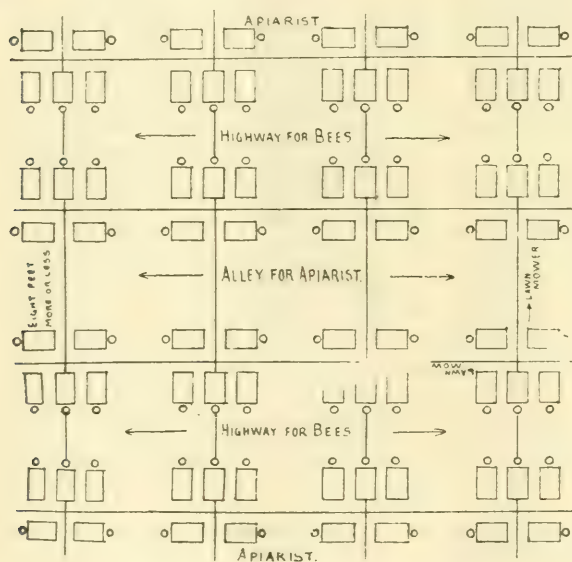
necessary; such as, for instance, wing-clipping, superseding for the purpose of introducing, or raising another queen.—[Ed.]

NUMBERING HIVES.

INVISIBLE NUMBERS: THE GROUP PLAN OF S. E. MILLER.

By S. E. Miller.

Friend Root:—Seeing so much said, lately, through the bee-journals about numbers for hives, it has caused me to offer my method, which is without numbers of any kind, except those kept in my head, and I do not think these are made of tin, manilla paper, or any other similar material. I did not know, however, that others were using a similar system to my own until I saw in the *American Bee Journal* for Oct. 31 the plan given by R. V. Sauer; and this evening, in looking over the editorials in *GLEANINGS* for Nov. 1, I notice what you say in reference to what E. E. Hasty had to say in the *Review* regarding hive numbers and toads' tails.



S. E. MILLER'S PLAN OF AN OUT-APIARY.

My method is not exactly like Mr. Sauer's, Mr. Hasty's, or Mr. Boardman's, and yet similar to all. Mr. Hasty numbers his groups, while I think letters for the groups are preferable. But without further preamble I will give my method.

If the reader will refer to page 21 of the A B C of Bee Culture he will see the S. E. Miller plan of an apiary. This plan was first given in *GLEANINGS* about five years ago, but I can not tell the exact year and number without overhauling a pile of back numbers.

Probably the editor could help out here at giving the number, or he might have a cut of the plan lying around the shop somewhere, with which to illustrate it if he considers it worth the trouble.

The hives are arranged in groups of 5, so that, for an apiary of 80 colonies, it will take 16 groups. We will say we stand on the south side of the apiary, and, facing it, we will call the southwest group A; and, going east, B, C, D, in succession. The first group on the west end of the second row is E, and so on throughout. Each group having 5 hives, the numbers run from 1 to 5. Thus, facing a group and looking north, the southeast hive of the group is 1, and the northeast group is 5. So the hive that occupies the third position in the third group is C3. It does not matter whether I am at home or abroad, that particular position of the apiary is where C3 belongs, and it doesn't have to have a big tin tag nailed fast to it either. And now see here, Mr. E. R., you may be older than I am, and know much more; but I'll bet you are not any bigger; and if you think you can put us fellows, who prefer to

carry our hive-numbers in our heads, aside by a wave of the hand, or even by a six-inch editorial, you are mistaken.

And now let us see what we have to say in favor of numbers in the head as against numbers nailed to the hives.

First, it is obvious that the stand and not the hive should bear the number. If No. 10 is here to-day, you do not want to look away over yonder for it to-morrow, which would be the case if No. 10 should swarm and you wished to remove the parent colony to a new stand, and hive the swarm where the parent colony stood, unless you should pull off that number (that you ought to have in your head) from the parent colony and nail it fast to the hive, and then go and get a new number for the parent colony. Certainly, for those who winter in cellars a number is

necessary if one wishes to have each colony occupy the same stand in the spring that it was taken from in the fall; but these numbers need be only temporary, and a piece of blue or red crayon would do very well to mark the hives with while they were in the cellar.

Second. These numbers are always where they belong; and if the apiary is laid out in any thing like order they are as stationary as the lot on which your house stands; while numbers, if hung on a nail driven into the hive, are liable to blow off and get lost in the grass;

or, if nailed or tacked on they must be pried off and nailed to another hive whenever it is necessary to change a hive from one stand to another; and we all know that such changes are frequently necessary, especially in swarming-time.

In that editorial you say, "But suppose he hired help, and he should direct his man, not very familiar with the arrangement, to 16-9." I will tell you how I would direct that man. If I wished him to get the queen from G5, and he had never seen the apiary, I would say, "Go to the apiary. Go in at the south door of the honey-house. When you get in, turn to the right, and look at the plan of the apiary tacked to the wall just beside the door. After looking at it a minute or two, if you can not locate G5 come and tell me and then go home.

What I claim for my method is that one letter and one figure indicate the number, there being no number higher than 5. Some may argue that having the same numbers so often is likely to cause confusion in keeping the records; but I find in actual practice it is not the case. One is not likely to mistake one letter for another; and bearing in mind that the southeast hive in each group is 1, and that the numbers go round like the hands of a watch, there is little likelihood of getting the numbers wrong. Let me give a sample record. I have not my book at hand, so will give you a sample from the same place that I carry my hive numbers.

H3, Mar. 15, strong, plenty of stores; May 28, swarmed; hived swarm here, and removed parent colony to L4; June 20, gave super.

By referring to the record of L4 we shall see where they came from, and will know that the queen is a daughter of the queen in H3; if all went well, we shall know she was reared by natural swarming; her age, etc.

Now let that other Miller tell us why he would have his big tin numbers nailed to the hives instead of carrying them in his head.

Bluffton, Mo., Nov. 4.

[We have reproduced the diagram in the A B C, for the convenience of our readers. Well, while I have no doubt that you can get along without the visible numbers, can't see what harm their presence on the hive or in the group can do, and it might be a great convenience. Why, it would save having a diagram or plot "tacked to the wall just beside the door." Then some chaps whom you might send there might commence numbering from the wrong side or end.

As to our own practice, we have never numbered our hives; but we had seriously thought of doing so, because it was inexpensive, and might be an advantage.

Perhaps it would be well to state that we have been using the Miller plan of grouping hives, in one of our yards, for several seasons. We like the arrangement very much. It economizes space, gives an alley for bees and one for the bee-keeper; and then, too, one hive makes a handy seat for working over its neighbor.—ED.]

RAMBLE NO. 144.

A SKETCH OF HARRY E. WILDER.

By *Rambler*.

During the past few months I have made quite free use of the name of my traveling-companion; and to atone, in a measure, for the jokes I have thrown at him I will in this ramble present him to your readers in the character of a progressive bee-keeper.

Harry E. Wilder was born about 28 years ago in Peterboro, N. H. His father has for many years been a manufacturer of thermometers; and any reader of this who owns a Wilder thermometer has the best and most reliable mercury-tube in existence—at least, Harry so insists. Thousands of thermometers are turned out of the factory, and for all conceivable purposes.



HARRY E. WILDER.

Harry lived under the paternal roof, with several other chips from the old block, male and female, until he arrived at the age to which all young men look forward with longing. At his majority he started out to experience the ups and downs of life among strangers and under new surroundings.

From early life our friend was an ardent lover of the chase, and his gun and hounds were familiar features on the streets of Peterboro. It may be readily surmised that the "hunting" around Peterboro was not of a wide and varied character; and a lover of such sport, when the opportunity came, would naturally seek the wild portions of our far western country, where both large and small game is plentiful.

In the interests of an eastern publishing company our friend found his way to the Pacific coast; and in Washington, Oregon, and California, when business cares were not pressing, the highest mountains and deepest canyons have been explored for game and natural wonders.

In 1890 he arrived in Southern California. Up to this time he had never been interested in the honey-bee. There were but few bees kept in his native town; and the few there were never attracted much attention from methods of management or from the yields of honey. He possessed the idea, common to a great many, that, the further he kept from a bee-hive, the better health he would enjoy. But in this land of sunshine he met with people who were making some money out of bee-management; and soon after arrival he was taken with a violent fit of bee-fever which did not cease its raging until he had paid \$400 for 100 colonies of bees. The person from whom he purchased the bees gave him his first instructions in management; and for a novice, and the first year, the results only opened his eyes to the fact that there are more things in bee-keeping than the average novice had ever dreamed or imagined, and his appetite for investigation was sharpened by his first year's experience. He became a subscriber to GLEANINGS, a student of Prof. Cook's Guide; and every bee-keeper, far and near, contributed to his knowledge, for he was not afraid to ask questions.

The apiary was located upon the north side of the San Bernardino Valley, near the mouth of Devil Canyon. Considering that Devil Canyon was not a good neighbor, the second year he changed his location to a series of rocky hills toward the south side of the valley, near Riverside. Here he found a canyon that fitted his name, "Wilder;" and as it was government land, and of no earthly use except for bee-pasturage, he took up a government claim and established himself near a beautiful spring of water, and here we find him to-day.

Mr. Wilder would disclaim any idea of being a scientific bee-keeper; but I think the name fits any person who manages his bees so as to secure the very best results from them and his field. As a step in line with scientific bee-keeping Mr. W. believes in managing only the number of colonies that he can thoroughly attend to; so he has never had less than the original number (100), nor more than the present number, 150.

In the early spring Mr. Wilder is in his bachelor cabin, believing in the old adage that "whatever is worth doing at all is worth doing well." The condition of every colony is investigated and noted.

The first essential to a good honey-yield is a vigorous queen. Nuclei are started as early as the season will permit, which here is in the latter part of February or early March. The queen-rearing is performed according to the Doolittle plan, and the nuclei are kept going through the whole season. Any queen that becomes superannuated, or fails to deposit eggs with due rapidity, is killed, and a young vigorous queen introduced in her place.

The next point is to give the queen ample room to deposit eggs. This line of work finds the hives just boiling over with workers as soon as the honey-flow opens. The results from close attention to these few little details are usually good; and during the past season the apiary of 120 has been increased to 150, and 17 tons of honey secured, or 283 lbs. from each of the original 120 colonies. It is also safe to say that two or three tons more could be taken from the apiary, without detriment; but Mr. W. is very provident in giving abundant stores for wintering. The honey does not spoil in keeping over till another season; and the plan two years ago enabled the apiary to pull safely through the poor season of 1894 with but a trifling loss.

The hive used in this apiary contains a frame the measurement of which, speaking in round terms, is 10 inches deep and 14 in length. He has a few which contain 13 frames, and I think he is partial to the jumbo idea; at least, when he saw a few Heddon hives in my embryo apiary he wanted to know what I expected to do with "those pumpkin-seed hives."

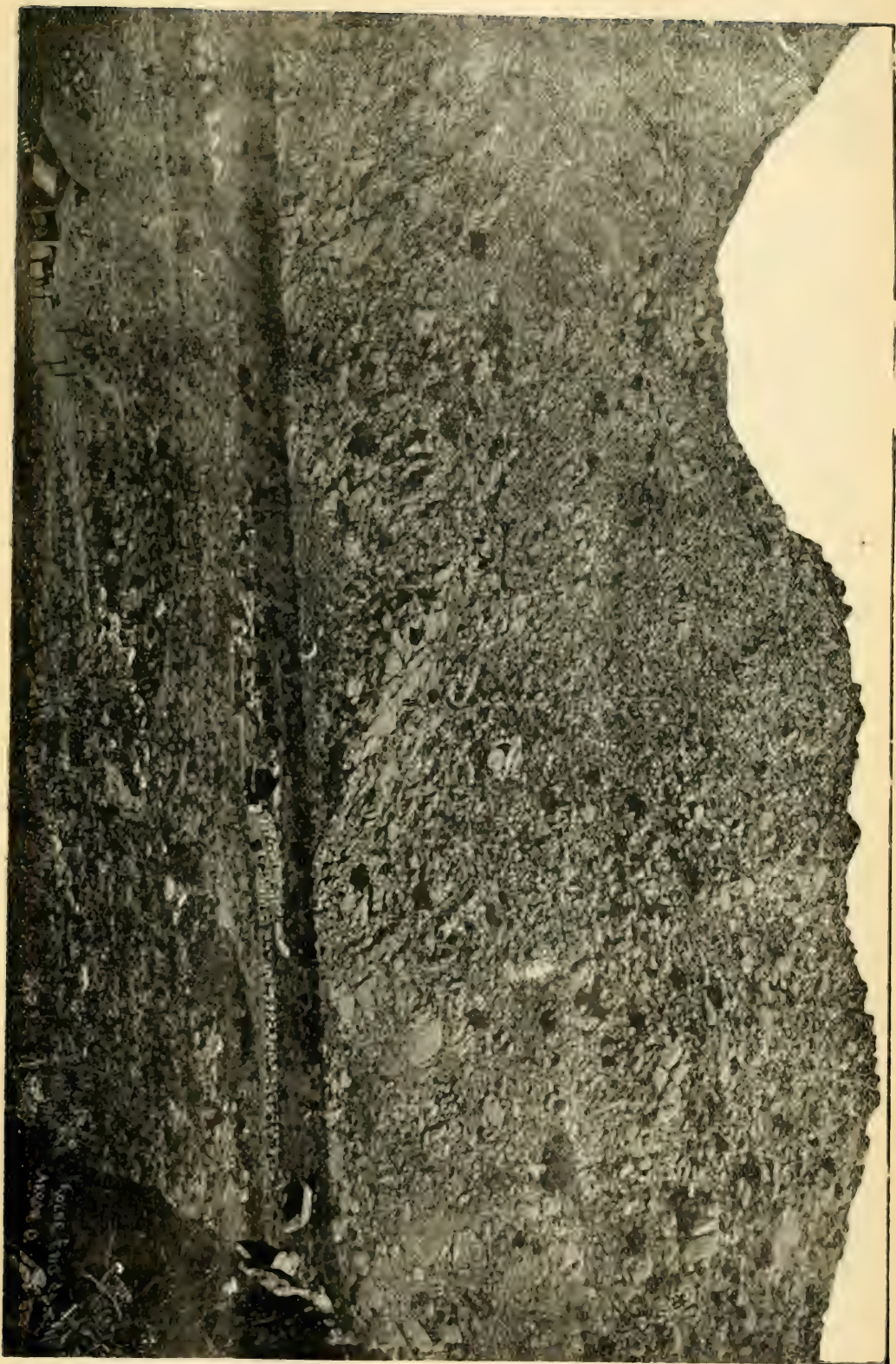
Mr. Wilder is anxious to find out whether bee-keeping as a pursuit can be made a paying business when worked independently of other pursuits. The success of the present season gives some encouragement that it may be made a paying business so far as production is concerned; but in the matter of prices the California bee-keeper labors under an immense disadvantage; and I think that in this alone is found the great Nemesis against the highest success on this coast.

If we step inside of Mr. Wilder's cabin we find many specimens of his handicraft as a taxidermist. A wildcat stares at us from a corner of the room, while several wildcat skins and a coyote skin are doing service as rugs, etc. Owls, hawks, and an endless procession of rare specimens of the feathered world stare at us with glass eyes.

Mr. W. is something of a literary man, having written up our last season's journey in fine style for the local paper at his old home in Peterboro, N. H. He might give some interesting articles to the bee-journals, but seems to be somewhat modest in relation thereto.

Upon the whole, the success of Mr. Wilder shows what a young energetic man can do here in the bee-business, with a very little capital; and if there are any young men in the East who contemplate migrating to this sunset land, please consider the above facts, and do not forget the capital and the energy.

[I sincerely wish our friend would write occasionally for these pages. If the article he did send us some time ago is a fair sample of what he can do he is one of the brightest, spiciest writers that ever wrote for GLEANINGS. There, there! I don't mean this for "taffy" or a "bait" to draw him on; but a bee-keeper of



WILDER CANYON AND APTAHY. RAMBLER 144

his all-around talent, and the success which has been his, should let his light shine.

By the by, he has an interesting history; but there is only one thing lacking to make it round and complete—a—dare I say it?—some fair Eugenia who would make that wild canyon fairly blossom, and Wilder the happiest man on earth.—Ed.]

ENTRANCE FEEDERS.

THE BOARDMAN AN OLD IDEA; SHADE, AND ITS EFFECT ON THE TEMPER OF BEES; A QUEENLESS COLONY RECOGNIZED BY THEIR NOT CARRYING IN POLLEN, ETC.

By E. H. Schaeffle.

About twelve years ago I purchased of Mr. C. F. Muth a feeder made from the Mason jar, screw top. The top was cut out, a piece of finely perforated metal soldered on, and a rim an inch deep soldered on. This made a good feeder if the jar, when first inverted, was placed over some receptacle until sufficient vacuum was created to cause the honey to feed slowly. Wishing to feed at the entrance, I made a thin box with tin bottom, and projecting strips at the open end. The top was of wood, with circular holes a little smaller than the rim on the feeder. The half-gallon Mason jar was inverted, placed over the hole on the top of the feeder, and it took care of itself. This did very well for hives having a wide entrance. I believe this is about the same as the Boardman feeder.

By the way, Mr. Boardman claims that, with a square hive, the queens won't go up into the sections. I have 140 square Gallup hives; and unless prevented with queen-excluding zincs the queen goes to the top super almost every season. I extracted several hundred sections of that kind last season, and had a few left to show Rambler when he was here. This season I find the queen would have done the same as in the few hives without zinc. The sections are full of brood. The queen does not wait for the cells to be drawn out, but lays her eggs as soon as the cup is deep enough to hold them. Where the flow of honey is limited or short, there may be no trouble of this kind. Shutting a queen up in sections, during a poor season, and not finding any eggs in the sections, proves nothing. The chances are that she would not have laid in the brood-nest, as she and the bees don't start a family when there is a doubt about its support.

Mr. Muth-Rasmussen once stated that bees are better-natured in the shade, and his statement was poo-hooed. A neighbor had an apiary that made the life of himself and family a burden. They were the most vicious bees I ever saw, and were a constant annoyance to me as well, so I bought them. He had them out in the sun, without any shade. I placed them in the shade of a row of apple-trees, within a few feet of a public sidewalk, and in the shade they

are as gentle as any bees I have. Eastern apiarists should remember that conditions with us are entirely different from the East. If they could stand their bees and themselves out in the heat when the thermometer registers 112° in the shade they'd soon find both the bees and themselves changing their angelic dispositions.

I stated last season, that, in the early spring, a queenless colony could be told by their not carrying in pollen. I made that statement after an examination that, in every instance, proved I was correct. Some of the bees were late fall swarms. In their combs there was *no pollen*; others were old colonies whose combs were full of old pollen from want of young bees to feed it to. When Rambler was here I showed him a drawing of a twelve-frame hive that I had made several years ago, and talked over its construction with him. He said:

"Look out for Heddon!"

"Why?"

"Well, he claims a shallow divisible brood-chamber as his patent."

"Don't all bee-keepers allow the queen access to all the extracting-supers in her spring laying, and afterward confine her to the lower brood-chamber?"

"Yes."

"Well, if you'll go over here to Columbia you'll find a bee-keeper who works all of his bees in 1-lb. supers, filling them all full of 1-lb. sections. It suits him but it wouldn't me;" and the last I saw of Rambler and Wilder they were headed for Columbia.

Now, there may be something in Mr. Heddon's hive that is patentable; but no one, certainly, can claim a patent on a hive because it is four inches or four feet deep. I have bought up all the bees in this section, and have a grand conglomeration of every shape, size, and style, from four inches to four feet in depth—box with cross-sticks, to the Dovetailed. All I want is an old-fashioned straw skep to gild and place on top of my bee-house.

This is my first season with the Cogshall bee-brush. When once you get the hang of it you can brush down the bees as slick as a Pullman porter does your clothes. It's "way up."

The Manum swarmer is good; but in its absence I found that a light box, 8 in. deep, 18 in. long, 12 wide, with screw-eye and hook in one end, did finely. Wet the box thoroughly; brush in the bees, hang it on a limb or the ladder, and brush the remaining bees off their alighting-place. In a few minutes they will all gather into the box, and can be carried anywhere.

I trust the bee-men will keep up the agitation for a 50-lb. honey-can. In its absence I use a light block and tackle, which lifts the extractor up on to a table. When I wish to strain out the honey I pick up a can of it and drop it into a case as cleverly as Sandow could do it, and all without any strain on my part.

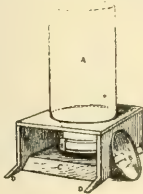
Bees with me are doing nicely. I shipped half a ton of this season's extracting, in the middle of April.

I notice that Mr. Crane states very plainly what he has been allowed a patent on. Will you give us a similar statement in regard to the Porter escape? I think a better one can and will be invented; but no one wants in any way to infringe on a just patent.

Sometimes since I suggested in GLEANINGS a system of transferring by drumming the bees up into a hive having at least one frame of brood, then placing a queen-excluding zinc over it, and the old hive over the zinc, and, when the bees had all hatched out, placing a bee-escape board under the old hive, and thus get the combs free of bees and brood. The idea was new to me; but I see since that it is the system used in France, which proves its value and previous use.

Murphy's, Cal.

[The principle of the Boardman feeder is old, and, indeed, I do not know that our friend has made any claims as to its being new. Yes, atmospheric entrance feeders are quite old. In looking over our back volumes I find quite a number. In GLEANINGS for 1881 and '82 several were illustrated; for 1881, see page 477; for 1882, see pages 174 and 221; and, again, one was shown and illustrated on page 561 for 1891. But the one on page 174 for April, 1882, by A. C. Kendel, resembles the Boardman more closely than any other, and some might pronounce it almost identically the same thing. But Boardman's is the cheapest and the best of all, and of late I have seen quite a number of excellent testimonials from those who have tried it since we illustrated and described it on page 346, current volume. The lower part (see adjoining cut) is made of wood, and gives plenty of room for the bees to cluster around the lid, secure from outside intruders.



The following are the claims upon which a patent was granted to the Porters.—Ed.]

1. A bee-escape comprising in combination a body having an opening in its top to register, with an opening in the escape-board whereby it is adapted to communicate with the super and open it at its end to adapt it to communicate with the brood-chamber, said body providing a passageway between the super and brood-chamber, and a guard of spring metal arranged in said passageway with the movable portion thereof normally out of contact with the top and bottom of the passageway, and adapted to yield laterally to the pressure exerted thereon by the escaping bees, and by its resiliency to close the passage against their return, substantially as described.
2. A bee-escape comprising in combination a body having a passage whose ends open outside the body, and a spring guard-piece arranged in said passage, and having one end thereof secured to a flexible, inelastic part of the structure, and its opposite end free, whereby by bending said flexible part the free end will be adjusted to vary the size of the passage, substantially as described.
3. A bee-escape comprising in combination a body having an opening in its top to register, with an opening in the escape-board, whereby it is adapted to communicate with the super, and open at its end to adapt it to communicate with the brood-chamber, said body providing a passageway between the super and brood-chamber, and said passage having placed therein a laterally yielding resilient guard-piece, the movable portion whereof is normally out of contact with all fixed parts of the structure, whereby clogging of the guard-piece with deposits made by the bees is avoided, substantially as described.
4. A bee-escape having a passageway adapted to communicate at one end with the super, and at the other with the brood-chamber, a spring guard-piece arranged in said passageway, and a chamber underneath the entrance to said passageway, and at a lower level than the floor of the passageway, whereby clogging of the passageway with dead bees is avoided, substantially as described.
5. A bee-escape comprising in combination a passageway adapted to communicate at one end with the super, and at the

other end with the brood-chamber, and a guard of spring metal arranged in said passageway, and having one end thereof secured to a flexible inelastic part of the structure, and its opposite end free, whereby, by bending said flexible part, the free end may be adjusted to vary the size of the passage, substantially as described.

6. A bee-escape comprising in combination a supporting-plate having an aperture therein, a shallow open-ended metallic body secured to the under side of said supporting-plate, and forming a passageway, spring guard-pieces arranged therein, and an outer box-like body having one open end, and secured to the supporting-plate around the body containing the guard-pieces, and closing one end of said passageway, substantially as described.

JAKE SMITH ON ADULTERATION.

The other day me and Zed went into the store. They was a nice-dressed man a talkin to Nat Boucher, the man that keeps the store. The stranger had a sample of hunny he was a sellin, and Nat had just bin a tastin the hunny, and said it was 1st class, and he thot he mite try a few pounds of it. Besides the bottle he had the sample in, he had it in cans to sell. I mean the man had, not Nat. It had nice labliss onto it, with pictures, and marked Pure Hunny. The stranger held it up to show how nice it looked, and was a tellin Nat how he could easy sell 1000 pounds of it, and just then Jim Short came in.

Jim listened to him reelin off his story for awhile, and then says he to the stranger, says he, "When you see hunny nowadays, you don't know whether it's hunny or not. How's a buddy to know whether that of yourn is the simon-pure juice of the posies or some of the city-made stuff?"

The stranger looked at him, and says he—he was a real pleasant-spoken man, and says he to Jim, "My friend, I'm afraid you've been reading some of the newspaper yarns. It shows you're a man of intelligence, and read the papers; but you mustn't believe all you read. That stuff about adulteration of hunny is all pure rot. There's nothing to it. Not a thing. Why, just think of it. I appeal to you as a man of judgment and discrimination, which I can see by you're appearance you're that sort of a man—I'm out in the world a good eel, and a man in my position learns to read character pretty well—I appeal to you if it's reasonable that men would buy glucose or any thing else to mix with hunny, when the bees furnish the pure article for nothing. Bees work for nothing, and board themselves; so a man would be a fool to try to make munny by mixin something with his hunny that would cost more than the hunny itself. No, sir; no one can afford to adulterate hunny. They wouldn't be any munny into it."

"Well, now," says Jim, "that does look kind o' reasonable; but supposin a man hadn't any bees, and bot glucose at 3 cents a pound, and then sold it at 10; it seems to me they would be some munny in it, even if he did mix some hunny with it. Fact is, you ain't sure of nothin bein pure nowadays. If I had my way I'd string up a few of the scoundrels. Hunt

out the men that mix glucose and hunny, and put 'em to the full extent of the law."

"That would only make matters worse," says the stranger. "Why, if it hadn't been for the everlasting clack of bee-keepers themselves they wouldn't be half as much said about adulteration. What good does it do to make such a fuss about it?—only makes folks suspicious. Come right down to it, what harm is there in glucose? It's a good wholesome article. And you can't tell it from pure hunny, so where's the difference? In fact, these men you come down so hard on are doing a good thing for bee-keepers. When it's a short crop they help to fill in and keep up the supply soze people don't get out of the way of wantin it."

"Stranger," says Jim, "may be you're right; but that's a kind of new way of lookin at it. May be it would be better to keep things hushed up. If a lot of counterfitters gits up a lot of bogus dollars that common folks can't tell from the genuine, you think it ain't best to say any thing about it; but increase the circlelation as much as possible. It would help to keep up the supply when munny is skerce. If you can't tell the bad munny from the good, where's the difference? Now, look here, stranger; I hain't much on readin character by lookin into a man's face, but you don't look like sitch a dog-goned fool as to believe the sort of stuff you're

round the counter at the cans of hunny which the stranger was a standin with his back to them, and had been samplin it with a little pine paddle; and just as Jim stopped talkin, Zed handed him the paddle with a sample on it, and, says Zed, "That's about as much like the sample in the bottle as tar is like molasses. I never tasted glucose; but that tastes mighty like the bee-papers tells about it. Say, Jim, how much of that would a fellow have to eat to make him want to steal from his grandmother?"

You just ought to have seen that stranger grab to get the cover on that can. He looked like he would like to eat up Zed, but he didn't dast to say any thing.

"I guess I don't want to buy any hunny today," says Nat.

It wasn't long before the stranger was a makin tracks for the next town.

JAKE SMITH.



SUPERSADING QUEENS.

Question.—Is it advisable to let a queen become more than two years old before superseding her with a young queen?

Answer.—Some believe it advisable to supersede all queens over two years old, unless perhaps they except those most valued for breeding-purposes, such claiming that older queens, as a rule, are not as prolific as young queens; hence it often happens that older queens fail at a time when the work of storing surplus is interfered with. All this sounds very nice; and if time hangs heavily on any bee-keeper's hands, here is a chance for such a one to pass away his time with the idea that he is doing that which tends toward a greater financial gain; but with the average bee-keeper it is usually more work than he can do during the summer months, let alone any work of a doubtful nature.

There is no question but that we want, for comb-honey production, either very prolific queens or a

brood-chamber not of a size which will require the most prolific queen to strain every nerve to keep it filled with brood. I believe it more profitable to adjust our hive system to the average queen than to practice superseding queens, as some do. A queen should be allowed to remain as mother of a col-



"WHEN YOU SEE HUNNY NOWADAYS YOU DON'T KNOW WHETHER IT'S HUNNY OR NOT."

a talkin. If it's a good thing for the bee-keeper when there's a short crop to have the supply keep a goin with glucose, do you suppose the chaps that do the mixin will be so everlastin accommodatin as to haul off from the market when the bees turn in a full supply?"

While this talk was a going on, Zed had got

ony as long as she retains her fecundity; for prolificness, not age, should be the test in this matter. I never supersede a nice queen, no matter how old, until she shows signs of failing powers. We want queens for the eggs they lay; and for that reason, power of production, and not age, is the rule to follow. I would not keep even a *young* queen, if she did not lay up to a fair average, for there are a few queens that are not prolific enough to keep four frames supplied with brood as they ought to be; and where I find such, I always give their colonies something better to take their place. However, such queens as this last are the exception and not the rule; for the bees do not often allow such queens to remain in the hive long, especially if they are of the Italian variety. After experimenting in the direction of superseding queens for years, I now decidedly prefer to leave it to the bees to decide when their queens are worn out, unless, by outside observations, I believe they are holding on to some unprolific young queen. As a general thing, the bees will make fewer mistakes in directing this delicate matter than the wisest apiarist is likely to make. I have had queens that were five years old do good duty till the commencement of their sixth year, when the bees would supersede them that autumn, the same as they often do in the autumn, with queens commencing in their second, third, or fourth year.

WAXING KEGS AND BARRELS.

Question.—What is the best method of waxing kegs and barrels for holding extracted honey? and should all barrels and kegs be waxed when used for storing honey?

Answer.—Before waxing any keg or barrel it should be kept in some dry hot room for two or three weeks till thoroughly dried out; in other words, the barrel should be as dry as it is possible for it ever to become, at the time of waxing. Having it thus dry and warm, the hoops should be driven as tightly as possible, and short nails, that will not reach through into the inside of the barrel, driven a foot or so from each other at the rear of the last hoop, so that the hoops will not get misplaced in handling. Now pour in, at the bung-hole, from five to ten pounds of very hot melted wax, or, what is preferable, paraffine, and quickly drive in the bung. Now turn the barrel over and over, and twirl it around on each end till you are sure all the cracks are filled. Then take out the bung, pour out the wax, and heat it over again for the next. Be careful to see that the bung does not strike you when taking it out, as it will often fly with great force if the wax is as hot as it should be.

Having told how to wax kegs and barrels, allow me to ask, in answering the latter part of the query, why not use those made of soft wood, which needs no waxing? Leaky kegs and barrels can never be made entirely safe by

waxing them. The shrinking and swelling of the wood, as exposed to wet and dry, will break the wax; and sometimes a heavy jar, when moving the barrels, will crack the wax and start them to leaking. Good workmen can make tight vessels, and they cost no more than leaky ones. A barrel or keg properly made of the right kind of wood needs no waxing, and the waxing is quite expensive at best.

FLAVOR OF EXTRACTED HONEY.

Question.—What is the best plan to preserve the flavor of extracted honey?

Answer.—To give extracted honey a fine flavor it must be thoroughly ripened. While some have evaporators, both sun and other, which they run extracted honey through or over, that has been extracted in its thin or green state, till it is of nice quality and consistency, as well as having an excellent flavor, yet, in my opinion, no honey has quite as nice flavor as does that which has been left on the hive till the end of the season, the bees having been allowed to ripen it till it is so thick that it will almost stand alone after being taken from the comb. Of course, it is more work to extract such honey; but by keeping it in a room whose temperature is nearly or quite 100°, for four or five hours, it can be extracted very nicely. When extracted, honey should be stored in tin or earthen vessels, and kept in a dry warm atmosphere that is free from odors. Loosely cover and let it stand in this warm dry store-room till all the air-globules have disappeared, the scum that arises being skimmed off, when the honey can be put into glass or tin vessels, ready for sale or family use, and it will retain its fine flavor for years if kept in a proper place.



THE PURITY OF CALIFORNIA HONEY, AGAIN.

Editor Gleanings:—The assertion was made by one of your correspondents, in the Oct. 1st number, that half of the honey in California is adulterated. I am sure it can not be true, and does great injustice to California. I live in the center of one of the largest honey sections in the State, from which quite a number of cars have been shipped, and where there is still in the hands of the bee-men, at the present time, 120 tons, not 1 lb. but is pure honey, and they are holding it at 4 cts.—a price at which, even if they wanted to, it would not pay them to adulterate it. We don't need to adulterate, as our bees work seven months in the year, and the honey rolls in a steady stream, keeping the bee-men busy taking care of it. There may be, and probably is, a little, that, after it reaches the city, is adulterated; but when we

get our bee-keepers' associations a little better organized we will look after them, as we have a law in this State, if we enforce it, that will prevent their calling it honey if it is adulterated. The great bulk of our honey leaves the State as pure as that found by Samson in the carcass of a lion, and I know it is ever so much nicer.

S. B. HOLTON.

Selma, Cal., Nov. 8.

THE ATLANTA EXPOSITION; SOMETHING FOR BEE KEEPERS WHO EXPECT TO ATTEND.

Inclosed please find card and circular of Mr. Smith, whom I am glad to recommend to all bee-brethren as a sincere Christian gentleman, a native Georgian whom I knew in Florida. All who call on him will be kindly treated. It will be greatly to their advantage to call on him before going elsewhere; within reach of depots and postoffice, in the very heart of the city, and close to the highest-rate hotels for those who want to pay higher prices. Street cars to exposition, 5 cts. I consider myself fortunately located—much better than I had hoped or expected.

F. DANZENBAKER.

Atlanta, Ga., Nov. 16.

If those coming to Atlanta, Ga., during the Cotton States and International Exposition, will write me how many in their party, and what kind of accommodations wanted, and send from some pastor of a church, superintendent of Sunday-school, president of Young People's Society, or responsible person, a statement that they are ladies or gentlemen, I will furnish such accommodations for them. I have many homes of the best and most wealthy Christian citizens of Atlanta opened for guests thus recommended.

Thieves, pickpockets, and robbers of all kinds will be here from everywhere. These will get homes where they can be admitted so they may do their work. The city will be crowded with people all the time; but if you send me your application early I can get you in a home free from this class.

Write your full address, number in the party, time expected to stay, sex of each in party, and of what church and society you are a member.

12 North Broad St., Atlanta, Ga. WM. B. SMITH.

CREOLINE A CURE FOR FOUL BROOD.

Some few years ago I saw an article in a Los Angeles paper, written by a man in Germany, who had used creoline with much success for curing foul brood. As I had been much bothered with foul brood I made up my mind to try creoline, although I had very little faith in it. When I started using it in October or November, foul brood was very bad throughout my whole apiary. I just sprayed my bees at the entrance to the hives, and did not examine the hives, as I did not doubt that I should have to clean them thoroughly next spring. But when I examined the hives in the spring I found them entirely free from foul brood. I have been troubled very little since, as I use creoline whenever it appears.

Directions for using.—Drop from 25 to 30 drops of creoline into one quart of pure soft water, and with this spray the bees at the entrance during the warmest part of the day, every second or third day. Repeat this five or six times. Also spray combs. I use an atom-

izer with coarse spray for entrance, and the fine spray for combs. The best time to spray is in the fall, right after the honey season is over, as the creoline has a tart taste, and may affect the honey if used during the honey season.

The apiary which had the foul brood so bad, but which is free from it now, made this summer 412 lbs. of honey, extracted, to the hive.

Valle Vista, Cal., Nov. 7.

HENRY OTTO.

[I don't have much hope, myself, that *real* foul brood can be cured so easily; but then, I hope some one will try it and report.—Ed.]

"PETRIFIED HONEY-COMB.

Is there any such thing as petrified comb? I found a stone about as big as a fist. I broke it in two with a hammer. Inside it looks like a box of comb honey, but smaller, and pressed together. It must have originated with bees or some insect like them. I never heard of petrified comb.

HENRY BRESSER.

Toledo, O., Nov. 12.

[The stone you found is probably what is more correctly called honey-comb coral. Prof. Cook, in his "Manual of the Apiary," page 157, has this to say of it:]

A very common fossil, found in many parts of the Eastern and Northern United States, is, from its appearance, often called petrified honey-comb. We have many such specimens in our museum. In some cases the cells are hardly larger than a pin-head; in others, a quarter of an inch in diameter. These are not fossil honey-comb, as many are led to believe, though the resemblance is so striking that no wonder the public generally are deceived. These specimens are fossil coral, which the paleontologist places in the genus Favosites, favosus being a common species in our State. They are very abundant in the lime rock in Northern Michigan, and are very properly denominated honey-comb coral. The animals of which these were once the skeletons, so to speak, are not insects at all, though often called so by men of considerable information.

THE TEN-FRAME IN THE LEAD.

We here in this part of Virginia go in for the ten-frame L. hive. There were two parties manufacturing hives here, the one 8 and the other 10 frames. Both were talking up their merits. The eight-frame man is now out of business, and the ten-frame man has the whole field to himself. I myself use the Manum hive of 11 frames and double story for extracted, and single story and section for comb. Give me a good brood-nest, and, consequently, a large colony, and if there is honey to be gathered they will get there.

S. H. BLOSSER.

Dayton, Va.

MORE THIEVES; THE HOUSE-APIARY FOR THE REMEDY.

I think the house-apiary for bees, described in GLEANINGS, is just the thing, and here is a child that will have one if it all goes well. The note about petty thieves was right to the point. If I had had a bee-house this season it would have saved me \$300 besides what I fed the bees. I got a sample feeder from Boardman a few days before it occurred, and I set it to work, and it works like a charm.

C. H. WIGGINS.

Stimson, Mich., Nov. 4.



THE *Kansas Bee Journal* has been merged into the *Rural Kansan*.

I EXPECT to attend the Chicago convention, January 9, 10, and perhaps the convention of the Ontario Bee-keepers' Association. Now that I have so far recovered my health, I have made up my mind to make up for lost time.

OUR old correspondent J. A. Green, who formerly wrote for these pages more frequently than of late, has finally deserted the ranks of bachelorhood and has taken unto himself a "queen" to reign over his house. I told him at the North American, at its meeting in Chicago last, that such a good-looking bee-keeper as he ought to have a "better half." Although he didn't take up with my suggestion then and there, perhaps he has been conning it over as a sweet morsel under his tongue.

THE BEE-KEEPERS' CONGRESS meets at Atlanta, Ga., Dec. 4 and 5. It is in no way connected with the North American, nor is it expected to interfere with it. Dr. Brown, who is the prime mover, says of it in the last *American Bee Journal*:

"It will simply be a sort of informal meeting of representative bee-keepers from different portions of America, to deliberate and discuss questions that concern the present and future interests of the industry of bee-keeping. Essays will be read by W. S. Hart, O. O. Poppleton, Dr. Peete, G. W. Demaree, Messrs. Dadant, Doolittle, Van Deusen, Mrs. L. Harrison, and others.

"The City Hall has been secured for the meeting. Excursion rates to the Exposition can be obtained from all the principal towns and cities. Rooms can be had at the Jackson Hotel (near the depot, and one block from the place of meeting) for 75 cents per day, and 50 cents for meals. The Jackson is a new hotel, and good place. Those who want less rates can find them at the Adkins House, 12 Broad Street."

The congress that met at New Orleans during the exposition was a grand success. At this meeting there was the largest gathering of bee-keepers that I believe ever assembled in this country, if we except the meeting of the North American at Chicago during the World's Fair. If the congress at Atlanta shall be any thing like its predecessor in the general attendance, in the presence of representative bee-keepers from all over the land, and in enthusiasm, we shall hope for a grand meeting and a good time. Seeing the exposition itself alone will more than repay the cost of transportation, and reduced rates are offered from all points. A. I. R. expects to be present. He will arrive in Cincin-

nati Monday, the 2d, so as to leave on the 7:30 P.M., via L. & N. He hopes to meet other bee-keepers on the same train.

THAT MOOTED HIVE QUESTION.

NOTWITHSTANDING many of our correspondents seem to be interested in this subject, and that there has been a general request for its continuance, I believe the time is now drawing near when we should draw it to a close. I shall use such matter as we have in type, after which we will devote our columns to other subjects. Much has been gained by the discussion I am sure; and what we have learned has been pointed out in previous editorials. I take pleasure in calling special attention to an article in this number, by R. C. Aikin, which sets forth pretty clearly the conditions under which the larger and smaller hives may give the best results.

THE DADANTS AND LARGE HIVES.

THE Home of the Honey-bees has again been favored with a call from another prominent bee-keeper and supply-man. This time it was C. P. Dadant, the foundation-maker, of Hamilton, Ill. Unlike some of our recent visitors he did not call in the interest of his health to see Dr. Lewis, preparatory to going on to the beef-diet cure. Oh, no! he was the very picture of health. Typhoid fever had left him (as it often does its victims) several notches better in health.

It will be remembered that the Dadants have been the pioneers in the advocacy of large hives—not simply ten-frame Langstroth, but ten-frame Quinby—frames that are $18\frac{1}{2} \times 11\frac{1}{4}$ in. instead of the L. size, $17\frac{7}{8} \times 9\frac{3}{8}$ inch. When I asked C. P. how they still stood on the hive question he replied that they were of the same opinion still. They have tested the matter over and over again on an extensive scale, with whole apiaries, only to find in every case that the large Quinby gave the best results. They had no "ax to grind," as it made no difference to them which style of hive or frame was adopted.

I told him it must be somewhat encouraging to them to note that, while they at first apparently stood alone, now a change toward their views and practice seemed to be slowly coming on. Yes, he said they long ago decided that time would vindicate their position.

In France the large Dadant-Quinby hive, among intelligent bee-keepers, is almost the standard.

The Dadants keep now only about 350 colonies. They have kept as many as five and six hundred. Besides their large foundation business, and the bees, they are extensive growers of grapes. C. P. looks after their business interests while the elder Dadant attends more strictly to bee-literature. While he has not written much of late for the bee-journals of

this country, he is a constant contributor to the French journals; and in that country, if I am correct, is counted as the highest authority.

By the way, the junior Dadant has lately come into the proud distinction of "father-in-law." It seemed rather strange to him, but he was getting used to it. His nineteen-year-old daughter has gone with a handsomer man than he. Congratulations to the new couple.

Although the Dadants, in a business way, meet us in sharp competition, it is a pleasure for me to record that there are no bee-keepers whose friendship we value more highly. Their competition has always been fair, and their business deals strictly honorable.

REPORT OF THE COMMITTEE ON AMALGAMATION.

The committee appointed by the last meeting of the North American at Toronto, to report on a plan of consolidation of the two organizations, the North American and Beekeepers' Union, have been hard at work; and now, after much correspondence, are ready to submit their report, which is as follows:

We, the Committee appointed at the North American Beekeepers' Convention, held at Toronto, Ont., September 6th, 1895, on the proposed consolidation of the North American Beekeepers' Association and the National Beekeepers' Union, report as follows:

The duties and powers of the Committee are clearly defined in the Resolution which authorized the appointment of the Committee, which after prolonged discussion was unanimously adopted. This resolution was as follows:

RESOLVED, That a Committee of seven be appointed to take into consideration the proposed amalgamation of the National Beekeepers' Union and the North American Beekeepers' Association, and to arrange terms therefor, with full power to perfect the same so far as this Association is concerned; and to report through the bee-periodicals, as soon as possible, the present President of this Association to be one of the members of that committee.

The Committee met and organized, and unanimously adopted the following address:

To Officers and Members of the National Beekeepers' Union, GREETING:

Being co-workers in one common cause—the welfare of the bee-keeping fraternity, and the advancement and defense of the pursuit of apiculture in America—we are authorized by the North American Beekeepers' Association to offer you the "hand of fellowship," congratulating you on your efficient organization and successful work during the ten years of your existence.

As there is no necessity for the existence of two organizations to accomplish the work which can easily be done by one, we propose a consolidation of our two societies, for the purpose of creating a closer "bond of union" between apiarists, and saving them the extra expense of membership in two bodies in order to gain the benefits and advantages which one can bestow, when united for that purpose.

Ever realizing that "in union there is strength," we offer you any portion of our name you may desire to appropriate.

We offer you our grand history and work accomplished during the past quarter of a century.

We offer you our members, in every State, Province, and Territory of North America, and, so far as we can, we promise their co-operation in all measures looking to the advancement of the interests of the pursuit, and a continuance of the glorious record you have made in the ten years of your successful existence.

All we ask in return is, that you add, to your al-

ready efficient organization, similar annual conventions to those we have heretofore been holding, at some convenient time and place, and, if possible, that you devise some equitable system of delegation so as to make such thoroughly representative, competent to act for the entire membership.

We desire that this proposition be submitted to your members, together with such constitutional provisions as may be necessary to effect the consolidation and provide for annual meetings, so that a full and free vote upon the same may be taken at your next annual election of officers, and hope that this proposition may be accepted—that being the only necessary step to unite us both into one strong and well-equipped organization. If the consolidation is effected, it would be desirable for it to go into effect as soon as possible.

THOMAS G. NEWMAN, Chicago, Ill.

F. A. GEMMILL, Stratford, Ont.

J. T. CALVERT, Medina, Ohio.

M. B. HOLMES, Athens, Ont.

A. B. MASON, Toledo, Ohio.

ENGENE SECOT, Forest City, Ia.

R. F. HOLTERMANN, Brantford, Ont.

CONSTITUTION OF THE NORTH AMERICAN BEEKEEPERS' UNION.

ARTICLE I.—NAME.

This organization shall be known as the "North American Beekeepers' Union," and shall hold meetings annually at such time and place as may be designated by the Board of Directors, due notice being mailed to all members at least 60 days previously, and published in the bee-periodicals of the United States and Canada.

ARTICLE II.—OBJECT.

Its object shall be to protect the interests of its members, to defend their rights, and to disseminate apicultural knowledge among the people.

ARTICLE III.—OFFICERS.

Sec. 1.—The Officers of this Union shall consist of a President, Vice-President, Secretary, Assistant Secretary, and Treasurer, whose duties shall be those usually performed by such officers.

Sec. 2.—The Secretary shall be General Manager, and shall have charge of the executive work of the Union, under the advice of the Board of Directors.

Sec. 3.—The officers shall be elected by ballot, and hold their several offices for one year, or until their successors are elected and qualified.

Sec. 4.—Nominations for officers shall be sent to the General Manager before the first day of November in each year, who shall cause the same to be printed in the bee-periodicals—and shall be printed and mailed by Dec. 1, with the necessary ballots, to every member who has paid dues for the previous year.

Sec. 5.—The Treasurer shall furnish a bond of \$2000 (to be approved and held by the President), for the faithful accounting of the funds of the Union, and shall pay out the funds only on vouchers signed by the President and Secretary.

Sec. 6.—The terms of office shall be for the calendar year, and the polls shall close on the last day of December.

Sec. 7.—Each annual meeting shall, by majority vote, elect a Chairman and Recorder from those present, to preside over the meeting, and prepare a suitable report of the proceedings for publication in the bee-periodicals as soon as possible after the close of the meeting. Any member whether an officer of the Union or not shall be eligible to these positions.

ARTICLE IV.—BOARD OF DIRECTORS.

The officers shall constitute a Board of Directors, which shall determine what course shall be taken by this Union, upon any matter presented to it for action, and cause such extra assessments to be made upon the members as may become necessary; provided that only one assessment shall be made in any one fiscal year, without a majority vote of all the members (upon blanks furnished for that purpose), together with a statement showing good reasons for another assessment.

ARTICLE V.—MEMBERS.

Any person may become a member by paying to the Secretary an entrance fee of \$1.00, for which he shall receive a printed receipt, making him a member of the Union entitled to all its rights and benefits until the 31st day of December, following. The annual fee of \$1.00 shall be due on the first day of January in each year, and MUST be paid within three months in order to retain membership in this Union.

ARTICLE VI.—FUNDS.

Sec. 1.—The funds of this Union shall be used for any purpose in the interest of the pursuit of bee culture, when approved by the Board of Directors; and to pay the legitimate expenses of the Union.

Sec. 2.—The salary of the General Manager shall be determined by the Board of Directors, but shall not be more than twenty (20) per cent of the gross income for each fiscal year.

ARTICLE VII.—AMENDMENTS.

This Constitution may be amended by a majority vote of all the members, provided that all proposed amendments shall be presented in writing, signed by three members, and sent to the General Manager before the first day of November, so that they may be presented in his Annual Report.

It seems to me the committee, considering the fact that its various members live hun-

dreds of miles apart, have done their work faithfully and speedily. While I hardly see how the proposed constitution could be improved, it is now submitted to the larger wisdom of bee-keepers at large for suggestions. It may occur to some, for instance, that the membership-fee should be reduced, as that has been advocated some; but the committee, if I am correct, feel that this is too bold a step just now. This is, perhaps, a question that should be left for the future.

THIEVES AND MISCHIEVOUS BOYS AT OUT-YARDS: HOUSE-APIARY THE BEST SOLUTION OF THE PROBLEM.

SEVERAL times our basswood out-apiary has been visited by thieves; and a few days ago some boys, bent on mischief or malice, actually overturned several of our two and three story colonies. It could not have been the wind, because there was intelligent (not to say mischievous) design in their madness. For instance, one hive—a three-story one—was turned bottom upward, and set back exactly on the same spot of ground. Strangely enough, although there was lots of honey, none was stolen; and, again, tools were scattered all over the apiary. Happening by on my bicycle I discovered this reversed order of things, and, as luck would have it, I must have come around shortly after the boys left; for robbers had not yet gotten at the exposed tops of hives from which the covers were removed. Is it possible I happened to scare them off before they had time to appropriate the honey?

The apiary is located among the trees a little ways back from the road, and the next house stands a little excluded from the view.

Well, what did I do? Simply set things to rights. Those big double and triple deckers I simply rolled like so many sugar-barrels, over and over and over, until succeeded, after much effort, in getting them near their old location: then I boosted, and grew red in the face, until I got them back where they were. "My!" thought I, as I got the last hive back to its place, "it must have been lots of fun for those boys to tug at them, if they worked as I did," for they were pretty well filled with honey and bees. You see we had not yet fixed them over for winter.

But how about the bees, the combs, and the frames? The latter were Hoffman, of course, and stayed right where "they were at;" and after the hives were back in their places you would not know, by looking at the bees or combs, that they had been subject to such rough treatment. So much for self-spacing Hoffman frames. What would have been the result if they had been the old-fashioned loose unspaced kind?

THE REMEDY.

At first I proposed inserting a notice, offering a reward for the arrest and apprehension of

the guilty parties, for the penalty, in this State at least, is very heavy for in any way unlawfully meddling or tampering with hives of bees; but on second thought I concluded it would do no good, and perhaps direct the attention of other malicious persons to the apiary in question.

In mentioning the matter to F. A. Salisbury he told me that not only his home but his out bees were in a house-apiary—just such a one as was recently described on page 662 of our issue for Sept. 1st. He could not only handle twice as many colonies with the same labor because every thing is so handy, but he could lock it up, secure from petty thieves and mischievous boys. The honey could be taken off at the proper season, and stored in the building, and he could at his leisure come and take it away.

Speaking of the house-apiary in this connection reminds me of the quick way of feeding his bees, and to which he briefly alluded in his article on page 663. Of course, inside he uses for convenience the common out-door hives. These give him the advantage of shifting whole brood-nests or supers; and then he can, when desired, bring an outdoor colony inside, and, *vice versa*, shift an inside colony to the outside. Instead of regular bottom-boards he uses shelves that are part and parcel of the house. In the bottom of this—that is, under each hive—are two grooves that are intended for feed. These grooves, extending outside of the hive proper, and covered with wire cloth as far as they project beyond the hive, prevent the escape of bees. When feeding-time comes, syrup is made in the house by the extractor plan, as given elsewhere. Glass Mason jars are filled full; squares of tin are then laid over, and, last of all, the jars are inverted and set over the wire cloth covering the aforesaid grooves. The tins are withdrawn from the jars now inverted, and the feed runs along the grooves under the brood-nests. The whole work is done inside of the building, secure from robbers and thieves of the human kind (some of our syrup during feeding was stolen also, at our basswood yard). Friend S. says the feeding can be done up in short order; and as fast as the jars are emptied, which can be told at a glance, they may be refilled if the colony requires it. As soon as they are fed they are prepared for winter, which is another short operation.

Mr. Salisbury says he has also overcome the smoke nuisance. By his arrangement he secures a cool pleasant place to work, no matter how hot outside.

I believe I shall not rest till we get a house-apiary at our basswood yard. A few more visits from thieves, to say nothing of the annoyance of having the hives tampered with, and tools stolen, would pay for a good building, in time.

THE SALISBURY TREATMENT; HOW TO PREPARE THE LEAN MEAT.

A LETTER FROM DR. SALISBURY HIMSELF.

Dear Mr. Root:—I notice in GLEANINGS for Nov. 1, page 817, an article on the preparation of "Salisbury steak," which is most decidedly wrong. The writer evidently had no idea of the fundamental principles of causes of the various diseases. The whole reason why the beef is ground is to extract the fiber from the muscle-pulp. This fiber is the very element which causes so much trouble by producing thickenings of various tissues throughout the body, and causing partial and complete paralysis; and it is very essential that it should be removed from the beef, as far as possible, especially in the cases of those who are very sick.

The following is the correct instruction for the preparation of the beef:

Eat the muscle-pulp of lean beef made into cakes and nicely broiled. This pulp should be as free as possible from connective of glue tissue, fat, and cartilage. The "Enterprise chopper No. X" (10) answers very well for separating the connective tissue from the pulp. When this machine is new the knife should have the sharp edge taken off with a whetstone, so as not to cut the fiber, and the end-plate should not be screwed up too tightly, but left loose, to allow a small space between it and the knife—enough to prevent cutting the fiber, and allowing it to be caught by the knife and by the holes in the end-plate. After grinding half a pound or a pound it will be noticed that the beef does not pass through. This is due to the holes being filled with the fiber, and fiber also collecting on the edge of the knife. Take off the end-plate and knife, and remove the fiber, and proceed as before.

In order to get out all of the fiber or connective tissue it is necessary to unscrew the end-plate and remove the fiber several times, and to put the beef through the machine from three to five times, according to the quality of beef. Previous to chopping, the fat, bone, tendons, and fasciæ should all be cut away, and the clean muscle cut up in pieces an inch or two square. Steaks through the center of the round are the richest and best for this purpose. Beef should be used from well-fatted animals that are from four to six years old.

The pulp should not be pressed too firmly together before broiling, or it will taste livery. Make the cakes from half an inch to an inch thick. Broil slowly and moderately well over a fire free from blaze and smoke. When cooked, put it on a hot plate and season to taste, with a little butter, "pepper and salt."

If you follow these directions you will have fine cakes free of fiber—tender, and in all a complete article of healthful diet.

J. H. SALISBURY.

170 W. 59th St., New York, Nov. 15.

I am sure, doctor, we are all of us greatly obliged for these timely words from the discoverer and originator of this method of treating disease. Ernest wishes me to emphasize the fact that there is great need of an intelligent physician to direct, especially where the disease is a serious one, and where it is necessary to come down to an absolutely lean-meat diet and nothing else. I have known many cases where people were greatly benefited by simply using more meat and less vegetables, especially avoiding the excessive use of sugar and other sweets. I can remember all along during the past 25 years, especially when my work required me to be in the office more than usual, Mrs.

Root would again and again say something like this:

"Look here, dear husband, you are getting into trouble just because you have neglected to eat meat of late, and you are eating too much other stuff that you should know by experience you can not stand. Now just let me prepare your food, and map out your diet for you for only just a few days, and see how quickly you will come out all right."

Well, she did bring me out all right; but notwithstanding I kept getting skeptical, or suggesting that other things would do as well as meat. By the way, there is one thing that I wish to mention. A great many people say that it might do for others, but it would never answer for them at all. They could not eat it—don't like it, and would starve to death, etc. In fact, when I recently adopted the exclusive meat diet I talked about the same way. In just three or four days I began to like my meat, and I can't remember a single occasion during the whole past three months when I did not have a good appetite, and have eaten with a good relish at least 10 or 12 ounces of the ground meat. When I got to using sirloin meat instead of the ground meat, at first I began to swallow the hard or gristly portions after I had chewed them pretty thoroughly. But I found this did not answer; and since then I have been having a small dish right beside my plate, where I put all hard, tough, and gristly portions, after chewing them enough to recognize what they are. Where digestion is weak or impaired, I am sure all these portions should be carefully taken out of the mouth.

By the way, the publishers of the Salisbury books, Kellogg & Co., 1031 Sixth Ave., New York, or 32 Church St., Toronto, have kindly furnished us a lot of little hints in pamphlet form, entitled, "Who is Dr. Salisbury?" and they give us a very complete history of Dr. Salisbury's discovery, and much other valuable information. We can mail them free of charge to anybody who applies, or you can get them, if more convenient, of the publishers, as above.

EGGS AS A HEALTH FOOD.

Dear Friend Root:—I have read with great interest what you have recently said in GLEANINGS on the subject of health. I have tried using the broiled beefsteak, with excellent results; but I have watched anxiously to see if any thing would be said regarding the use of fresh eggs. There are many people who need a change of diet to help them out of a bad condition of health, but they do not live where they can procure fresh beef every day. Those who live in the country can produce the fresh eggs right at home; and I think that, when properly used, they are very helpful. I have found that a piece of toasted bread and two or three poached eggs make a breakfast that seems to agree with a disordered stomach as well, or nearly so, as the steak. But eggs should be properly cooked. They should not be boiled hard, but cooked to a jelly, either by poaching or by placing them in boiling water, and then removing the dish containing them to the back part of the stove, where they will cook to the proper degree in about ten minutes.

A man in Vernon Co., this State, died at the age of 106 years. He was asked what had been his principal food. His reply was that he had lived largely on scalded eggs. I know it has been claimed that the use of eggs is against purity; but I believe it is no more true than the claim that lean beef makes people "ferocious."

I should like to know the opinion of yourself and the doctors as to the use of eggs. They are not vegetable food, neither does the procuring of them necessitate the taking of life.

Browntown, Wis., Nov. 6. HARRY LATHROP.

Friend L., I have omitted to say that we are permitted to have the white of an egg with our beef-diet occasionally. As it is principally al-

bumen, and contains neither starch nor sugar, it is, I believe, almost as free from objection as the lean meat itself. I presume, however, it would not answer for a steady diet, like the lean meat. With most patients the yolk is objected to. I think I have heard Dr. Salisbury say that it contains sulphur in considerable quantities; and where there is a disposition toward gravel or mineral deposits in any part of the system the yolk of the egg should not be used—or, at least, very sparingly. Inasmuch as the use of eggs does not necessitate the taking of life, I entirely agree with you. But in most markets, where one uses eggs for even a small part of his diet, it would be rather expensive—more so, I think, than lean meat.

THAT POTATO PREMIUM.

MAULE'S NEW EARLY THOROUGHBBRED.

Nothing we have ever suggested in the way of a premium has made such a stir as that pound of Maule's Early Thoroughbred potato, offered for one new subscriber. By the way, we are just informed by friend Maule that the price of the potato for 1896 is \$1.50 per lb., post-paid; 3 lbs., \$3.00; 10 lbs., \$7.50. Of course, I am not to undersell him, therefore we can not sell a single pound of potatoes for less than \$1.50; but we are permitted to make every present subscriber to GLEANINGS a present of 1 lb. of the potatoes if he will send us a new subscription. We do this in order to have GLEANINGS introduced in a new locality, new post-office, or even into a new family. Of course, no one would be so foolish as to send us \$1.50 for a pound of potatoes when he could have the same pound for only \$1.00, and have GLEANINGS thrown in *besides*; so if you really want a pound of the potatoes, and do not want to pay \$1.50, why, send us \$1.00, and then make somebody a present of GLEANINGS for the one year. It is a tremendous offer we are making. I am well aware; but it is of very great benefit, as you may readily see, to any publisher who has a good journal (and that means *our* journal, does it not?) to have that journal introduced and read. Sending sample copies does pretty well; but nobody gets acquainted by looking over one sample copy. Your humble servant, A. I. Root, is said to be a little peculiar, and that he has some queer fashions of his own; but after having GLEANINGS a whole year, people generally get acquainted with him and understand him, and they very generally like to keep up the acquaintance—it *pays* them to do so. Now, this is not boasting or bragging, for we are all peculiar to a greater or less extent; and it helps amazingly in this world of ours to get acquainted one with another, especially where there is even a little bit of "hungering and thirsting after righteousness," we will say, on *either* side.

Well, now, since making this offer of mine, unforeseen and unexpected complications have come in. For instance, instead of getting one new subscriber, a man gets *two**; and then some one else wants to know how the *new* subscriber is to get a pound of potatoes, for he

wants it just as bad as the other man. Well, the plain and evident way is for the new subscriber to start out himself and get another new name among some of *his* friends and acquaintances; or if you secure a new name, and the subscriber wants a pound of potatoes also, you can be neighborly and divide up. Tell him if he will subscribe for GLEANINGS, and give you \$1.00, you will give him half of the pound of potatoes. Why, just look here, friends; what do you suppose can be done with a single half-pound of potatoes, or even *less*? When I was down in Missouri, one dark night I blundered into the family of our good friend Yoder. They were all gathered around the supper-table. But, weren't they astonished when they found that A. I. Root was there among them at that late hour of the night! and wasn't there a hustling of the chairs to make room for the editor of GLEANINGS! and didn't they just pile the good things over at my end of the table! Well, the next morning we went out and looked at friend Yoder's garden. I told you about his Prizetaker onions for which he was going to get \$1.50 per bushel. He got the plants started under glass (you will remember) by pulling the windows out of his shop. Now, if you will turn back to GLEANINGS, page 752, you will see what he undertook to do with only 6 ounces of the Craig potato. In fact, we copy his statement from the above page:

The Craig Seedling potatoes you sent me arrived at the postoffice on the coldest Sunday of last winter, and were not taken out till Monday. They were frozen, all but 6 ounces. I now have 16 hills of the plants, and 60 side-shoot hills. G. J. YODER.

Garden City, Mo., Aug. 6.

Now, here is the outcome:

Friend Root :—The 6 ounces of Craig potatoes mentioned in GLEANINGS, page 752, produced 87 lbs.; the main plants, 45 lbs.; side shoots, 42. The latter part of September was very dry, but the side-plants remained green until frost. G. J. YODER.

Garden City, Mo., Nov. 15.

There, friends, you see what Gideon Yoder did with 6 ounces of Craigs—87 lbs., or at the rate of 232 lbs. from 1 lb. planted. But the Craig is a late potato. With this new Maule's Early Thoroughbred potato you can probably get *two* crops in a season—at least, most of us can. The way to do it is being pretty well written up in our various gardening periodicals. And while we are about it we might give right here what friend Greiner says in the *Practical Farmer* for Nov. 9, in regard to the Thoroughbred in his locality:

Blood will tell.—This is what Mr. Terry tells us in P. F. of Oct. 5, first page. We have tried the same potato of which he speaks, a new early one sent by Mr. Maule for testing. In my own patch, four hills were planted with the two tubers, and the yield was nothing remarkable. A brother of mine made twenty-one hills of his two specimens, and planted them in the field with Carman No. 1, Clapp's Favorite, and Star. The yield of the twenty-one hills amounted to just half a barrel (90 lbs.), or twice as much as Mr. Terry got. The potatoes are of enormous size, and in quality all that any one could desire. Yes, blood will tell. If you plant a heavy-yielding variety, even with careless culture, you will be more liable to get a big yield than when you plant scrub varieties, even with the best of treatment.

He also says, in regard to the Freeman potato, in the same issue, as follows:

The Freeman, I think, has made more friends this year than ever before. It is surely as beautiful a potato as one can ever hope to find, so smooth and clean and uniform. It is also as fine a table potato as we ever had, so white and mealy. Of five competitors for premiums on best peck of table potatoes at a local Western New York fair, three exhibited Freemans, and one got first premium, while another had second. When it comes to "best table potatoes," the Freeman surely takes the lead. We

*If a man gets two new subscriptions he gets 2 lbs. of the Thoroughbred potatoes, and so on—a pound of potatoes for every new subscription; and he can work at it all winter if he wants to—that is, so long as the five barrels of potatoes hold out. By the way, our offer on page 841, Nov. 15, a pound of potatoes for subscribing for 1896 and '7, all together, will be withdrawn after you see this. If you do not see this at all, it will be after Dec. 15. You see there are not going to be potatoes enough in that five-barrel lot to go around.

have often complained of "too many and too small potatoes in the hill," as a characteristic of the variety. Such complaints are not heard this year. The Freemans have turned out well all over. I had planted mine in my usual way of seeding—about a half medium-sized tuber in a hill. Yet the potatoes when dug were just about the right size for use or market, few extra large, and almost no small ones. They appear well in the bin. The yield was at the rate of about 250 bushels per acre. What they would have done, if not checked by the long dry spell, is hard to tell.



With the same measure that ye meet withal, it shall be measured to you again.—LUKE 6:38.

The above has been repeated over and over again so much that some of the friends may be tempted to say, "Oh dear me! I have heard that over and over again so many times that it really makes me feel tired to hear it." Yes, this is indeed true; but notwithstanding the sermons and admonitions and grand texts we have in such profusion all about us, through our periodicals, from the pulpit and the prayer-meetings, and in the Endeavor Societies—notwithstanding all this, we are selfish and greedy still. Evidently, we do not believe it. We preach one thing and practice another. This matter has been brought vividly to my mind since I have been in the potato business by the subject of barrels. How much is a barrel? The word "barrel" has come to mean so much or so little that several times I have been tempted to think we had better abandon barrels and use bushel boxes—the Terry bushel box, for instance.

There are several reasons, however, why boxes can not well take the place of barrels. First, one man alone can handle a heavy barrel easier and quicker than he can handle a box of the same weight. He can roll it along the platform or he can roll it up a plank into a wagon. Transportation companies, I believe, make a distinction in rates of freight on goods in barrels over those in boxes. Again, a barrel properly hooped will stand more hard usage than a box of about the same capacity, weighing the same number of pounds. That is, a barrel weighing 20 lbs. will hold more goods, and keep them in better shape, than any box that has ever been made, of similar weight. Apples and potatoes, to ship without being bruised and mashed up, should be pressed in solid, so they can not shuck about in transit; and this can be done with a barrel better than with any sort of box. Finally, my impression is that a barrel can be made for less money than a box of the same capacity. For some time to come, probably, barrels will be used for shipping all sorts of produce and a great variety of goods.

Years ago we used to call a barrel three bushels; and we used to have good fat plump-looking barrels. They did not look starved, and straight up on their sides, like a stovepipe. When I was a juvenile, right across the street from the old schoolhouse, under the limbs of a spreading oak, was a cooper-shop; and that cooper of olden time made good honest barrels. How patiently he explained to each juvenile mind the whole operation from beginning to end, from bringing staves and heading from the piles out in the yard, and making them into nice honest smooth barrels, and all by

skillful handwork, from first to last! Those barrels would hold flour, without having it sift out; or they would hold vinegar—especially when the purchaser said he *wanted* a good vinegar-barrel; and they held a good plump three bushels. I do not remember that our good friend Mr. Coe ever made a small, scanty, scrimped, straight-sided barrel, such as we have nowadays. Well, I can remember later along when there was a discussion in regard to the size of barrels. Somebody complained, who bought a barrel of apples, that there were not three bushels.

"Oh! yes, there is," said the dealer. "Look here; we will measure them up."

"But," says the purchaser, "you don't heap up your half-bushel enough. A barrel of apples and potatoes must be piled clear up."

And here again came discussion. The dealers were not always to blame, because, when a farmer took a load of potatoes around town somebody would say, "Yes, I will take three bushels of potatoes providing you give good measure."

"Well, how good measure do you want?"

And then the buyer piles them on the half-bushel just as long as he can make the potatoes stay on top. This is manifestly unfair—as unfair as the other way; and I have seen grocers bantered; and where they happened to be meek and inoffensive sort of people, some customers would impose upon them by demanding all that would lie upon the measure. Can you blame the grocer for wanting some measures that might be heaped up to suit, and not contain over a real peck even then?

Well, by and by it transpired that there was an agreement, in order to settle all these jangles, that a bushel of potatoes should weigh so much, say 60 lbs. My impression is, that the laws of the State of Ohio have fixed a bushel of potatoes at the above weight; and we have also tables giving the weight of grains as well as vegetables that shall constitute a bushel. One unfortunate phase of this matter is, however, that different States fix the bushel at different weights; and on buckwheat the weight of a bushel varies as much as three or four pounds. It seems to me as though this thing need not be, for somebody has to be the loser when grains have to be shipped from one State to another. It has been urged that, when potatoes are just dug—especially if they are a little damp, and some of the soil is sticking to them, weighing is not fair either; for 60 lbs. of potatoes, just as they come from the field, will weigh only 57 or 58 lbs., or perhaps less, after they have been kept over winter. This may be true; but selling by weight is very much better than letting every one who is of a greedy turn of mind give half a bushel even full or rounded up according as he happens to be buyer or seller.

For many years we have been in the habit of purchasing second-hand barrels at the groceries and stores; and we find barrels that will hold as little as two bushels and some that will hold as much as four, and even more. Since we have got into the potato business we have found that, in order to do business in a square honest way, we must define in our price lists that a barrel of potatoes is supposed to be 11 pecks; and then we usually put in parenthesis, by way of safeguard, "(165 lbs.)." But even if our barrels are made at a barrel-factory, they do not seem to be uniform in capacity. A lot of 1000 may *average* about 11 pecks; but some of them will be likely to lack half a peck while others will go half a peck over. May be there are barrel-factories that do better than this. I hope so. Sweet potatoes, as they come from

the South and East, are evidently put up without weighing at all. If you specify, however, in making an order, that you will take 10 barrels of potatoes providing they average 150 lbs. to the barrel, you will likely get it; and I think this is the best way to do business. It is some trouble to remember and specify, every time, what you expect to have when you agree to pay a certain price; but it has the effect of avoiding jangles and disputes, and is very much pleasanter all round. The man who is careful to build up a good name, and keep his good name after he gets it, will be very apt to comply with all your conditions if he expects your order. In our own practice we put 165 lbs. in a barrel—or, rather, the boys have instructions to put in 167 lbs., so as to be a little over rather than under; and then if the barrel is not full we fill up with straw or shavings. If a customer orders three barrels we sometimes put the whole into only two very large barrels. This is generally satisfactory, providing a card of explanation gets there before the potatoes do. If our packers neglect to do this on the invoice, sometimes the customer will write back:—

□“Look here, Mr. Root. □I ordered and paid for three barrels of potatoes; but I found at the station only two; and the agent says there are only two on the bill of lading. I have been told you are a good, straight, honest man; but it looks as though I had been humbugged in this my first deal.”

Most of you, especially those who are old in business, will blame the man for being in haste to think evil; but when I look abroad and see how many there are who send away their hard earnings, and get swindled out of part or all of it, I confess I feel a good deal of charity for those who are in haste to think they have been cheated. A good many times I have felt like giving almost the whole business world a good shaking—that is, if I were equal to the task. Do you ask why I would shake it? Why, because people do not *talk* more and *explain* things better. A good many hate to write a letter. They can not even take a postal card and pencil, and say: “You will find your three barrels tightly packed in two very large barrels.” Now, this much on a postal might save a jangle that would cover pages of foolscap later on. The illustration I have given is a very plain and simple one; but in business matters unheard-of complications come up. The dealer is suddenly sold out; sometimes it seems advisable to take just a little liberty in substituting. He may decide, in order to get the order off before freezing weather comes, to put in a higher-priced potato at the price he received, rather than to fail in getting off the order complete. An explanation at the proper time would have made every thing pleasant and neighborly. Neglect to do so makes no end of jangles.

□A good many of us are interested either in buying or selling potatoes for seed, or both; and some of us have more or less to do with the new potatoes that have commanded such high prices when they first came out. Now, where a man gets a high price for an article, say three or four times what potatoes are worth in the ordinary market, for eating purposes, under such circumstances we should expect, of course, he would give good measure. This, however, is not always the case. It would seem at first thought that one who is anxious to build up a trade of any kind would recognize the advantage of advertising his business by giving *good quality* *any good measure*. Some of the new potatoes are very large. Sometimes, besides this, they are long; and for this reason it is

difficult to get as many pounds into a barrel as where the potatoes were *all* either small or some of them small. But where the price is large, and the product large, it would seem as though the seller might be quite willing to purchase larger barrels. Sometimes he does not think of it. He should think of it, however. Not only the success of his business, and his good name that is involved, but other things come in here. A good many people are accused of preaching one thing and practicing another; and if we do not look out, we shall all of us be more or less guilty. There is a class of people, too, who, when they buy, demand the very fullest measure; but when they sell they give the smallest possible measure.

A little item has been going the rounds of the press, to the effect that a farmer's wife brought some butter to a grocer. Said he:

“Madam, I am sorry to say these rolls of butter do not weigh a pound. They are scant weight, every one of them.”

The dealer, however, was not so keen and bright this time as he thought he was. She slipped a package from under her shawl, and held it up.

“My dear sir, that butter was weighed out with a pound of starch bought of you at this grocery. Every roll of butter weighs exactly as much as the pound of starch, *paper and all*. Here it is, and you can try it.”

The woman might have added, in the language of our text, “With the same measure that ye mete withal, it shall be measured to you again;” but I can not learn that she did so.

In regard to barrels once more. Everybody who advertises produce by the barrel should, if he wants to build up a reputation, state how much the barrel contains. Suppose, however, he does not do this—he simply says so much per barrel; and when his customers complain that the barrels are scant, suppose he falls back on his printed prices, saying he didn't say the barrel held three bushels or even eleven pecks, or any thing about it. In one sense he could not be accused of cheating or unfairness; but public sentiment would be against him. There seems to be a general agreement or understanding that any thing that can be justly called a barrel should hold at least eleven pecks, or 165 lbs. I notice in some of the quotations in the papers that a barrel price is given, and then right under it another barrel price for a barrel of 180 lbs. This would be a three-bushel barrel of the old-fashioned kind. I remember of buying a barrel of cranberries; but when we came to retail them they were scant weight. I wrote to the dealer, and he said my order read just one barrel, but it did not say how much it should contain. Had I said I wanted a barrel of cranberries, “*flour-barrel* size,” I should have gotten one that held fully 100 quarts of cranberries. As I did not say so in making my order, I had no redress.

Now, friends, this way of doing business may be all right according to law, but it is not right according to “gospel.” A man who is a professor of religion, and who claims to gauge his life, business, and every thing else by the standard of Christ Jesus, should be ashamed of any such logic. If such a transaction as this should be made by any of his clerks, he should, as soon as he finds it out, make it good whether he loses or gains financially. He should recognize that every thing of this kind tends to dishonor more or less our Lord and Savior Jesus Christ; and this should be of more importance than every thing else in the world besides. Saving property or money, or coming out whole in a transaction of dollars and cents, should sink into insignificance compared with

holding up the standard of the Christian religion. But we do *not* lose by shunning "even the appearance of evil." These little transactions or little inconsistencies tell in a way that no one can comprehend. They tell away off into the future; and when a man once gets a reputation for doing not only all he agrees to do, but all that might be reasonably implied, it is worth more to him than money in the bank; it is worth more than the backing of influential friends; it is worth more than to be a *millionaire*, for it is something that endures through time and eternity.

Perhaps we need such lessons often to help us remember the golden rule. Years ago I decided that it is an excellent thing to be very careful of one's promises; but after having made a promise, either verbal, written, or printed, either in private or public, once having made a promise or agreement, be very sure to do *all* you promise, and, as a rule, just a little more, in order to shun even the appearance of evil.



BATTLE CREEK, MICH.

I was greatly interested, as you may know, in going through the hospital—an immense building which stands near the sanitarium. I can not begin to tell you about all I saw there, but I will mention some things. One room, for instance, is devoted to glass bottles and globes containing tumors that have been removed by surgical operations during years past. There are hundreds of them. They are from the size of an egg up to that of a bushel basket. A complete history of each case was kept on file for reference. I asked my guide, Will K. Kellogg, a brother of the doctor, if errors in diet were probably the cause of the tumors that are becoming so alarmingly prevalent.

"To a certain extent, Mr. Root; but errors in dress are a far larger factor, without question, in producing tumors."

"Errors in dress?" said I. "Do you mean tight lacing?"

"Yes, and that same fashion of cramping the body in other ways. The reason why tumors are more prevalent among women is probably because they are more apt to cramp themselves by their clothing."

Dear friends, does not the above indicate a terrible state of affairs in such an enlightened nation as ours?

Dr. J. H. Kellogg, of Battle Creek, is probably one of the foremost surgeons in the world; at least, so far as I know, he is generally accorded that credit. As my visit happened to be on the regular operating-day, I was, by the courtesy of friends Keck and Kellogg, invited to be present during one of the most critical and difficult operations. Adjoining the operating-room was a little room called the chapel. Here, the surgeons, together with the nurses and students, all meet for a brief season of prayer before undertaking any operation that may have a fatal termination. As I looked into that little room I could not but breathe a prayer that the time might come when every surgeon and every physician in our land, who takes human life, as it were, in the hollow of his hand, could have the spirit in his heart of asking the great God above to give him wisdom and guidance.

The room prepared specially for surgical operations is lighted by skylights from above, so that every facility that the best and strongest light can furnish is at hand. There were three or four surgeons present, and perhaps half a dozen nurses, belonging to the hospital, and I was at once struck by the intelligent and cheerful appearance of the nurses.

The subject to be operated upon was a woman. What could be more fitting than that gentle Christian women should be all round about her to assist in every way they could, not only in sympathy, but in kind womanly attentions and touches? Just above the operating table was a little gallery for the use of medical students. All the nurses, all the doctors, all the students, were covered with a white robe or gown. These gowns enveloped the whole body, even to the feet and head. Their office is to protect the patient from any microbes or bacteria that might accidentally be brought in on the clothing of some one present. Your humble servant found a place among the medical students, enveloped in his robe like the rest. At my elbow was a shorthand writer to take down every particular in regard to the case, and to note every word, explanation, and direction given by Dr. Kellogg, the operator.

The patient was suffering from a diseased kidney. She had been operated upon before; but in order to save her life it was now deemed best to remove the diseased member entirely. Hot water or boiling water was used everywhere as a precaution against blood-poisoning. The knives and all the instruments were thoroughly cleansed with boiling water. Perhaps it may be news to some of you, that, unless this great and extreme care is exercised in cutting into the human body, the surgeon may do more harm than he does good. The medical fraternity at Battle Creek understand these things probably as well as anybody in the world, for they have a corps of expert microscopists, entomologists, and expert scientists in every thing pertaining to bacteria and fungoid growths. Great quantities of lukewarm water were first used to wash out the diseased portion of the body. The patient was given chloroform by means of a delicate apparatus that was new to me. Dr. Kellogg proceeded very slowly and cautiously. At first he gave us a little running talk by way of explanation; but when the discovery was made that the diseased kidney was entirely enveloped and covered up by growths of tissue and fat, then he finally explained to us that it was a very difficult and dangerous case.

In cutting away this abnormal growth, the blood came more and more, for it was interlaced with blood-vessels. The attendant nurses supplied lint and bandages to take up the blood, and the warm water was applied almost incessantly to wash away the blood so the doctor could see where the point of his lancet was penetrating. He explained to us that one little cut too far or in the wrong direction would be almost surely fatal. Never before in my life did I feel so intensely that these things are all in God's hands after all; that in spite of all the wonderful skill that has been achieved in the practice of surgery, God still holds the slender thread of life in his own hand. I know that they prayed in their little chapel before the work began; but my praying was done (and it was done in real earnest too) while it seemed—at least to me—a question whether the patient could ever survive. Finally, during the most critical portion of the operation, the chloroform seemed hardly adequate. The patient shut her teeth, and there seemed danger that she might choke. I do not know whether

lockjaw sets in at such times or not; but I for one feared it.

One of the bright nurses, however, was right at hand with an apparatus for forcing open the jaws. Then another delicate instrument was brought into requisition, and fastened to the tongue to hold it away so it might not close the opening of the windpipe. During all this time the chloroform was necessarily suspended, and the patient began to suffer terribly. It always troubles me when I can not help in a crisis of this kind, especially, where human life is in peril. Thank God, there was *one* thing I *could* do right then and there. Perhaps I should explain right here that I was told I must not speak nor make any sort of noise, for medical students are often dismissed in a body for failing to keep perfectly silent during a critical case like that. The only way in which I could help was by silent prayer. The quantity of blood that flowed, it seemed to my weak and inexperienced eyes, was enough to kill anybody, and I had about given up all hope, although I still prayed mentally, even if it was with but little faith. A fragment of that little hymn—

I am]weak, but thou are mighty.;

kept coming into my mind. Slowly and carefully the doctor worked. One attachment after another was sundered by the keen steel blade. Sometimes it seemed as if the operator meditated a little before cutting away something that seemed to be in the way. After a long time, as it would seem to me, he finally reached the connection that attaches the kidney to the body. Here he was obliged to stop in order to take a bit of cord, held right ready to his hand, before he had had even time to ask for it, by one of the nurses, and the necessary knot was formed before severing the organ.

Let me say right here that it seemed wonderful the way that his nurses, without a word being spoken, kept holding every appliance for the operation, as one thing after another was needed. Sometimes it was water, given through a small rubber tube; sometimes it was lint or bandages, then it was, every little while, some new surgical instrument for holding the skin, the flesh, and different organs out of the way of the operator. I did not notice the time when the operation commenced. It seemed to me as if it must have occupied toward an hour.

I was to leave on the train at three o'clock. Friend Keck silently moved out, for he was close to the door. I gathered from this that it was about time for me to take my train; but so intensely interested was I that I took the chances of waiting a few minutes longer. I did not see the kidney entirely removed, for it was a very slow and careful operation; but I stood until I was sure the terrible ordeal was almost over; I asked friend Keck to write me the result; but, to confess the truth, I had decided in my own mind it was next to impossible for a human being to live after being taken to pieces and overhauled in that manner; but, of course, I know very little about such things. Almost as soon as I got home, the cheering news came that the patient had rallied and was doing nicely. A little later she bid fair to not only recover, but to recover quickly. Within a week or ten days, if I remember correctly, she was able to sit up; and now she is pronounced almost if not quite out of danger.

By way of conclusion I want to say just a word in regard to the physicians and surgeons of this sanitarium. I feel quite certain that not one of the eminent doctors present at that time was ever guilty of the use of strong drink, or even of using tobacco. They were men whose faith is in God, and who are daily seek-

ing his kingdom and righteousness. The time was when our ministers used to enter the pulpit, saturated with tobacco, and sometimes with something worse. At the present time, however, such things may be tolerated in some of the aged members of the ministerial fraternity, but very rarely among the younger ones. I wonder if the time is not also near at hand, when people will demand for a *family physician* one who has no smell of tobacco about his person, and one who is *pronounced and decided* in regard to the use of spirituous liquors. God speed the day!



TURNIPS AND CRIMSON CLOVER.

We are now gathering and selling some of the handsomest turnips we ever raised in the world, and they cost us almost nothing except the seed. It comes about in this way: When we were cultivating our Corey corn the last time, we sowed crimson-clover seed among the corn, as I have told you. Well, we mixed in about an ounce of turnip seed with 5 lbs. of clover. We wanted to have the turnips so far apart that they would not crowd the clover nor crowd each other, and we hit it to a dot. After the ears got too hard for marketing we just pulled up the corn by the roots, knocked the dirt off against the wagon-wheel, and fed it to the horses and pigs. The ground was cultivated with a fine-tooth Planet once after sowing the seed. We have now a very even stand of large nice crisp turnips; and the crimson clover between the turnips is making great rank dark-green clumps of clover. They are stooling out considerably this fall. The plants lie closer to the ground than ordinary clovers; and I feel sure that, on this account, they are going to stand the winter, especially with the growth they have made.

Right adjoining the Corey corn was a strip of Mammoth Evergreen; but the clover and turnips did comparatively little among that great rank-growing corn full of life and energy. I suppose one reason was, there was so little rain there was not moisture enough to go round, and the corn had possession of the ground in the first place, and naturally resented the intrusion. This corn was saved for seed—at least, a large part of it, so it was considerably later before the corn was cleared off, leaving the turnips and crimson clover to have the whole of the ground. There are a few turnips and some clover that I do not think will amount to much.

Now, in managing in this way, especially where we are going to have a very dry season, clover and turnips had better be put in with some crop that is going to get out of the way pretty early. We sowed some turnips and clover in the same way among our beans; and although this was put in a week later, we have a very good stand of clover and turnips both, because the beans are not so tall, and they were pretty well along toward maturity when clover was put in. By referring to GLEANINGS for Aug. 1, page 605, I see that we did the greater part of our turnip and clover seeding on the 29th of July. We sowed White Egg turnips. Purple-top Globe, and Yellow Aberdeen; and all of them have done splendidly except where they were in the rank strong-

growing corn, as I have told you. Just before Thanksgiving we expect to pull all the turnips, then the clover has "undisputed sway."

NEW VEGETABLES AND PLANTS TESTED DURING 1895.

Our friends will remember that GLEANINGS had considerable to say about the lathyrus silvestris, or flat pea. Well, it has not stood the dronth of the past season as I expected to see it do. Perhaps our hard clay soils are not just the thing for it. It stood the severe winter all right, and furnished a great amount of feed until the severe dry weather set in. I do not think its roots have gone the great distance claimed for it—not at this stage of growth, anyway. So far as we have tried it to feed stock, they all seem to take it readily. Our experiments were mostly made in the spring. Bert Cook, when he was with us, said that, so far as he could find out, it was a success in Michigan at the Agricultural College, so far as producing feed was concerned, but no kind of stock seemed to be very fond of it, and he thought it was going to be a failure in that respect. Sacaline, though it grew up perhaps three feet high, and then produced quite a quantity of cream-colored blossoms, has not as yet had sufficient foliage to make any test of it for feed; but very likely it is getting root so as to make a show another year. At present writing it would seem that neither of these plants is going to be exactly what has been claimed for them.

The bush yam, or vineless sweet potato, that was growing so handsomely, made a fine show of tops, but no potatoes of any account, on our soil; but for that matter we never have had a good yield of sweet potatoes, or yams either, on our ground. Yes, we did have some very good-sized yams, but they were not dry and mealy like the sweet potatoes we get from Baltimore. We tried selling them around town; but all of our customers voted the home-grown were not as good as those shipped in from other localities.

Best of All beans I have reported on before. There seems to be no fault coming out with regard to these; but they are not particularly new.

We have tested several kinds of sweet corn, but do not find any of them enough better than we have, to give them a place in our new catalog.

The Sweetheart melon, mentioned in August, we have thought worthy of a place.

Burpee's Fordhook tomato will also be cataloged for 1896.

We are testing the Marshall strawberry, and think quite likely we shall give it a place in our catalog next July. We have at present, however, no plants for sale.

The Gault raspberry has already received sufficient notice. We think it has come to stay.

On page 499 we copied at length from the *Rural New-Yorker* in regard to Electropoise, and the editor there agreed to test the thing for a period of several weeks. He has done so, and here is his report:

Some months ago the *The R. N.-Y.* gave its opinion of the Electropoise, a device for which extravagant curative properties are claimed. The people who sell this contrivance promised, as proof of the value of their "Poise," to cure a person who has been an invalid for some years. That person tried the device carefully for two months according to the directions of the company's physician. He was to have tried it three months, but after two months' trial he was taken with a serious illness! His opinion of the Electropoise, after the two months' trial, is that, as a remedial agent, it exerts no effect whatever.

Books for Bee-Keepers and others.

Any of these books on which postage is not given will be forwarded by mail, postpaid, on receipt of price.

In buying books, as every thing else, we are liable to disappointment if we make a purchase without seeing the article. Admitting that the bookseller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. I very much desire that those who favor me with their patronage shall not be disappointed, and therefore I am going to try to prevent it by mentioning all the faults, so far as I can, that the purchaser may know what he is getting. In the following list, books that I approve I have marked with a *; those I especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines; †; foreign. ‡ The bee-books are all good.

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice, that you can judge of the size of the books very well by the amount required for postage on each.

8	Bible, good print, neatly bound.....	20
10	Bunyan's Pilgrim's Progress**.....	30
20	Illustrated Pilgrim's Progress**.....	75

This is a large book of 425 pages and 175 illustrations, and would usually be called a \$2.00 book. A splendid book to present to children. Sold in gilt edge for 25c more.

6 First Steps for Little Feet. By the author of the Story of the Bible. A better book for young children can not be found in the whole round of literature, and at the same time there can hardly be found a more attractive book. Beautifully bound, and fully illustrated. Price 50 c. Two copies will be sold for 75 cents. Postage six cents each.

5	Harmony of the Gospels.....	35
3	John Ploughman's Talks and Pictures, by Rev. C. H. Spurgeon*.....	10

1	Gospel Hymns, consolidated Nos. 1, 2, 3, and 4, words only, cloth, 10 c; paper.....	05
2	Same, board covers.....	20

5	Same, words and music, small type, board covers.....	45
10	Same, words and music, board covers.....	75

3	New Testament in pretty flexible covers.....	05
5	New Testament, new version, paper covers.....	10

5	Robinson Crusoe, paper cover.....	10
4	Stepping Heavenward**.....	18

15	Story of the Bible**.....	1 00
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A large book of 700 pages, and 274 illustrations. Will be read by almost every child.

5	The Christian's Secret of a Happy Life**....	25
8	Same in cloth binding.....	50

5	"The Life of Trust," by Geo. Muller**.....	1 25
1	Ten Nights in a Bar-Room, T. S. Arthur*..	05

5	Tobacco Manual**.....	45
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This is a nice book that will be sure to be read, if left around where the boys get hold of it, and any boy that reads it will be pretty safe from the tobacco habit.

BOOKS ESPECIALLY FOR BEE-KEEPERS.

Postage		[Price without postage.]
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15	A B C of Bee Culture. Cloth.....	1 10
5	A Year Among the Bees, by C. C. Miller... 45	

5	Advanced Bee Culture, by W. Z. Hutchinson 50	
3	Amateur Bee-keeper, by J. W. Rouse..... 22	

14	Bees and Bee-keeping, by Frank Cheshire, England, Vol. I. &.....	2 36
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21	Same, Vol. II. &.....	2 79
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10	or, \$5.25 for the two, postpaid.....	90
10	Bees and Honey, by T. G. Newman.....	1 15

5	Cook's New Manual. Cloth.....	95
5	Doolittle on Queen-Rearing.....	10

3	Dzierzon Theory.....	22
2	Foul Brood; Its Natural History and Rational Treatment.....	05

1	Honey as Food and Medicine.....	1 25
15	Langstroth Revised by Ch. Dadant & Son.. 1 40	

10	Quinby's New Bee-Keeping.....	50
4	Thirty Years Among the Bees, by H. Alley 46	

5	Success in Bee Culture, by James Heddon 08	
1	Handling Bees, by Langstroth. Revised by Dadant.....	25

5	Bee-keeping for Profit, by Dr. G. L. Tinker 95	
1	The Honey Bee, by Thos. William Cowan.. 40	

3	British Bee-keeper's Guide Book, by Thos. William Cowan, England, &.....	15
4	Merrybanks and His Neighbor, by A. I. Root 46	

3	Winter Problem in Bee-keeping, by Pierce	
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MISCELLANEOUS HAND-BOOKS.

5	An Egg-Farm, Stoddard**.....	45
5	Amateur Photographer's Hand-book**.....	70

5	A B C of Carp Culture, by Geo. Finley.....	35
5	A B C of Strawberry Culture**By T. B. Terry	

1	Probably the leading book of the world on strawberries. Barn Plans and Out-Buildings*.....	1 50
1	Canary Birds. Paper.....	50

- 2 | Celery for Profit, by T. Greiner** 25
The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once, without any assistance except from the book.
- 8 | Domestic Economy, by I. H. Mayer, M. D.** 60
This book ought to save at least the money it costs, each year, in every household. It was written by a doctor, and one who has made the matter of domestic economy a life study. The regular price of the book is \$1.00; but by taking a large lot of them we are enabled to make the price only 60 cts.
- 1 | Draining for Profit and Health, Warring. 1 50
- 10 | Fuller's Grape Culturist ** 1 40
This is, perhaps, the most systematic, comprehensive, and thorough work on grape culture now in print; in fact friend Fuller here tells us how, by easy steps, to make any grapevine come into the work, and make a pleasant, orderly appearance; and he makes it as attractive as a piece of fiction; and the best part of it is, that you get great crops of beautiful grapes during almost any kind of sea-son. We have tested the system, and know whereof we speak.
- 1 | Farming For Boys* 75
This is one of Joseph Harris' happiest productions, and it seems to be the only one that is so fascinating to any boy who has any sort of taste for gardening.
- 7 | Farm, Gardening, and Seed-Growing* 90
This is by Francis Brill, the veteran seed-grower, and is the only book on gardening that I am aware of that tells how market-gardeners and seed-growers raise and harvest their own seeds. It has 166 pages.
- 12 | Gardening for Pleasure, Henderson* 1 85
While "Gardening for Profit" is written with a view of making gardening PAY, it touches a good deal on the pleasure part; and Gardening for Pleasure takes up this matter of beautifying your homes and improving your grounds without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 404 pages and 203 illustrations.
- 12 | Gardening for Profit 1 85
The latest revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward making market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts.
- 1 | Gardening for Young and Old, Harris** 1 25
This is Joseph Harris' best and happiest effort. Although it goes over the same ground, occupied by Peter Henderson, it particularly emphasizes the youth and cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.
- 10 | Garden and Farm Topics, Henderson** 75
- 5 | Gray's School and Field Book of Botany 1 80
- 5 | Gregory on Cabbages; paper* 25
- 5 | Gregory on Squashes; paper* 25
- 5 | Gregory on Onions; paper* 25
The above three books, by our friend Gregory, are all valuable. The books on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.
- 10 | Greenhouse Construction** 1 40
This book, by Prof. Taft, is just out, and is as full and complete in regard to the BUILDING of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.
- 15 | How to Make the Garden Pay** 1 35
By T. Greiner. This is a new book, just out, and it gives the most explicit and full directions for gardening under glass of any kind in the world. Those who are interested in hot-beds, cold-frames, cold-greenhouses, hot-houses or glass structures of any kind for the growth of plants, can not afford to be without the book.
- 1 | Handbook for Lumbermen 10
- 10 | Household Conveniences 1 40
- 2 | How to Propagate and Grow Fruit, Green* 15
- 2 | Injurious Insects, Cook 25
- 10 | Irrigation for the Farm, Garden, and Orchard, Stark 1 40
This book, Stark is well informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills, to take the place of rain, during our great droughts, is the great problem before us at the present day. The book has 374 pages and 142 cuts.
- 5 | Manures; How to Make and How to Use them; in paper covers 45
- 6 | The same in cloth covers 65
Covering the whole matter, and discussing every thing to be found on the farm, refuse from factories, mineral fertilizers from mines, etc. It is a complete summing-up of the whole matter. It is written by F. W. Semper.
- 7 | Market-gardening and Farm Notes, by Burnett Landreth 90
The Landreths are the pioneer seedsmen of America; and the book is worth fully as much as we might expect it to be. I think I received hints from it worth the price, before it had been in my hands fifteen minutes. It is exceedingly practical, and it is well to be on the safe side and what is BEING done, more than it discourses on theory.
- 3 | Maple Sugar and the Sugar-bush** 35
By Prof. A. J. Cook. This was written in the spring of 1887 at my request. As the author has, perhaps, one of the finest sugar-camps in the United States, as well as being an enthusiastic lover of all farm industries, he is better fitted, perhaps, to handle the subject than any other man. The book is written in Prof. Cook's happy style, combining wholesome moral lessons with the plainest and best method of managing to get the finest syrup and maple sugar, with the least possible expenditure of cash and labor. Everybody who makes sugar or molasses wants the sugar-book. It has 42 pages and 35 cuts.
- 1 | Our Farming, by T. B. Terry** \$2.00
In which he tells "how we have made a run-down farm bring both profit and pleasure."
This is a large book, 639 inches, 367 pages, quite fully illustrated. It is Terry's first large book; and while it touches on the topics treated in his smaller handbooks, it is sufficiently different so that no one will complain of repetition, even if he has read all of Terry's little books. I should call it the brightest and most practical book on farming before the world at the present day. The price is \$2.00 postpaid, or clubbing with GLEANINGS for 2.50. Those who are already subscribers to GLEANINGS may have it postpaid by sending us 1.50 more. We are so sure it will be worth many times its cost that we are not afraid to offer to take it back if any one feels he has not got his money worth after he has had it. It ordered by express or freight with other goods, 10c less.
- 3 | Onions for Profit ** 45
Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with all the enthusiasm and interest that characterize its author, T. Greiner. Even if one is not particularly interested in the business, almost any person who picks up Greiner's books will like to read them through.
- 1 | Poultry for Pleasure and Profit** 10
- 11 | Practical Floriculture, Henderson* 1 35
- 10 | Profits in Poultry* 90
- 2 | Practical Turkey-raising 10
By Fanny F. Root. This is a 35-cent book which we offer for 10 cts.; postage, 2 cts.
- 4 | Peabody's Webster's Dictionary 10
Over 30,000 words and 250 illustrations.
- 2 | Rats: How to Rid Farms and Buildings of them, as well as other Pests of like Character 15
This little book ought to be worth dollars instead of the few cents it costs to any one who has ever been troubled with these pests, and who has not. It is written in such a happy vein that every member of the family will read it clear through, just about as soon as they get hold of it. It contains a complete summing up of the best information the world can furnish.
- 1 | Silk and the Silkworm 10
- 10 | Small-Fruit Culturist, Fuller 1 40
- 10 | Success in Market-Gardening* 90
This is a new book by a real, live, enterprising, successful market-gardener who lives in the suburbs of Boston, Mass. Friend Rawson has been one of the foremost to make irrigation a practical success, and he now irrigates his grounds by means of a windmill and steam-engine whenever a drought threatens to injure the crops. The book has 208 pages, and is nicely illustrated with 110 engravings.
- 1 | Ten Acres Enough 1 00
- 1 | Talks on Manures* 1 75
This book, by Joseph Harris, is, perhaps, the most comprehensive of the kind on the subject, and the whole matter is considered by an able writer. It contains 366 pages.
- 2 | The Carpenter's Steel Square and its Uses 15
- 10 | The New Agriculture; or, the Waters Led Captive 75
- 2 | Treatise on the Horse and his Diseases 10
- 5 | Tile Drainage, by W. I. Chamberlain 35
Fully illustrated, containing every thing of importance clear up to the present date.
The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as in doing almost any thing else; and by following the plan directed in the book, one man will often do as much as two men without this knowledge. The book embraces every thing connected with the subject, and was written by the author while he was engaged in the work of digging the ditches and laying the tiles HIMSELF, for he has laid literally miles of tile on his own farm in Hudson, O.
- 3 | Tomato Culture 35
In three parts. Part first, by J. W. Day, of Crystal Springs, Miss., treats of tomato culture in the South, with some remarks by A. I. Root, adapting it to the North. Part second—By D. Cummins, of Connecticut, O., treats of tomato culture especially for canning-factories. Part third—By A. I. Root, treats of plant-growing for market, and high-pressure gardening in general. This little book is interesting because it is one of the first rural books to come from our friends in the South.
- 3 | Winter Care of Horses and Cattle 35
This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I don't think it will pay you to invest in the book. It has 44 pages and 4 cuts.
- 3 | Wood's Common Objects of the Microscope** 47
- 8 | What to Do and How to be Happy While Doing It, by A. I. Root 50



I shall be on my way to Atlanta about the time this reaches you, and shall be glad indeed to meet as many of the friends as possible.

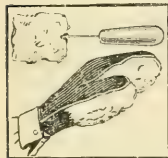
SOLD OUT.

The Early Ohio and Early Puritan, both first and second sizes, are sold out, and the prospect is just now that we shall not be able to get any more to furnish at the low prices we have been offering them; also second sizes of all other potatoes are sold out except Lee's Favorite and Freeman.

ORDERING POTATOES NOW, TO BE SHIPPED WHEN YOU DIRECT IN THE SPRING.

We shall once more undertake to send out potatoes as we did last spring but we shall not risk starting them before the first of April, no matter how enticing the weather. You will need to order the potatoes now (say before Jan. 1st) to secure at the very low prices given in our potato circular mailed on application. You must either pay for them now, or make a sufficient payment on them to pay us for putting them up and furnishing cellar space for them till next April. Or we will ship them sooner providing you will stand all loss from freezing. In other words, they are to be shipped April 1 unless you direct otherwise. At the very low rates we have given, we shall very likely run out of many kinds before spring (Early Ohio and Early Puritan are already sold out); but if they are put up now, your name marked on them, "paid for," you make a sure thing of it. We guarantee them wintered safely without freezing, and with no more sprouting than can be prevented by an excellent cellar made on purpose, and opened and closed according to the weather, that they may be neither too hot nor too cold.

POLISHING MITTEN.



There are very few house-keepers who do not have a stove to black, and many take pride in making it shine. One of the best implements for this purpose is the polishing-mitten shown herewith. This is a woman's invention, and a good one too, as you might know. It consists of a mitten of oil-cloth, faced with sheep or lamb's skin tanned with the wool on. The mitten is accompanied by a dauber, also of wool on the hide. Those who have tried the mitten are loud in its praise. They are usually sold for 35 cts. postpaid. We can furnish them for 25 cts. sold, or with other goods, not postpaid, 20 cts. each, or \$1.80 per doz.; 3 doz., \$4.50. We will send one free, postpaid, for one new subscription to GLEANINGS at \$1.00.

ON TO ATLANTA.

Ask your ticket-agent for tickets to the Cotton States Exposition at Atlanta, Ga., via the Louisville & Nashville and Nashville, Chattanooga & St. Louis Railroads. This is the old soldiers' route during the late war, passing through Murfreesboro (Stone River battlefield), Tullahoma, Bridgeport, and for miles in full view and around the base of Lookout Mountain; also the famous Moccasin Bend to Chattanooga; thence over the Western & Atlantic Railroad to Atlanta. The schedules are as follows: The fast mail leaves Cincinnati at 11:30 A. M.; arrives at Louisville at 2:57 P. M.; Nashville, 8:58 P. M. Leaves St. Louis 7:52 A. M.; Evansville, 2:12 P. M.; Nashville, 9:10 P. M.; Chattanooga, 1 A. M. Arrives at Atlanta 6:50 A. M. The Cotton States Flyer leaves Cincinnati 7:30 P. M.; arrives at Louisville 11:14 P. M.; Nashville, 6:50 A. M. Leaves St. Louis at 7:35 P. M.; Evansville, 1:25 A. M. Due at Nashville 7:10 A. M.; Chattanooga, 11:50 A. M. Arrives at Atlanta 4:00 P. M. The Atlanta special leaves Cincinnati 5:30 P. M.; Louisville, 9:30 P. M.; Nashville, 2:40 A. M.; Chattanooga, 7:00 A. M. Arrives at Atlanta 11:25 A. M., and is a solid train from Cincinnati to Atlanta. All trains have elegant day coaches

and Pullman's finest sleeping-cars. HERMAN HOLMES, T. P. A., Medina, Ohio. Jackson Smith, D. P. A., Cincinnati, Ohio. C. P. Atmore, G. P. A., Louisville, Ky.

SOMETHING NEW IN COMB FOUNDATION.

We have in successful operation a new machine for sheeting beeswax, invented by E. B. Weed, formerly of Detroit, late of Ludlow, Ky. By means of the machine a decided advance is made in the manufacture of comb foundation. A much superior article is secured, at quite a reduction in cost of making. A patent has been applied for by the inventor, on the machine and its product. The wax is supplied to the machine in liquid form, and it comes from it in a continuous sheet of any desired thickness, and trimmed to width desired. It can be still further perfected so as to pass the sheet through the embossing-rollers of a foundation mill, and be trimmed to length as it comes out. Already, before the machine is quite out of the experimental stage, one man sheeting and another rolling, produced four hundred pounds of medium brood foundation in a day. Further particulars of the machine will be given later. We shall be pleased to mail samples of foundation to those interested. Foundation made by this process is more transparent, and less brittle when cool.

SEED BUSINESS FOR 1896.

With the much improved health I have been enjoying for the past few months, we are making better provisions for good seeds for 1896 than ever before, and many of them will be at greatly reduced prices. At present, prices have not been decided on all seeds, but enough so that we anticipate much pleasure in surprising our friends of past years with prices on many things lower than they have ever been since we have been in the business. We will try to give you a condensed list for Jan. 1. We are making arrangements, however, so that any orders sent in early will have the benefit of the reduced prices, even before they have come out.

GARDENING FOR DECEMBER.

In our locality, making garden for this month must be mostly confined to working under glass. As to how well this will pay, the only way I know of to find out is to make some practical tests. Take up some big heavy clumps of asparagus after the ground has been once well frozen; start them in a hotbed heated either by steam or manure, and see what you can get for asparagus-shoots along about Christmas and New Year's. If you have protection enough, do the same with kidney wax beans.

It is a good plan to start beets now, and they do not take very much heat, but it takes them a good while to grow. Sow the seed now, and you will have beets for market in January or February. They almost always bring big prices.

Wakefield cabbage and cauliflower usually bring good prices also, for growing under glass.

With the scarcity of celery all over the country, it is an excellent time now to work out some plan by which we can get nice celery under glass. We are trying it now. White Plume is the most promising.

Watercress always sells, and it is one of the easiest plants to grow under glass that we have ever tried. A package of seed costs only 5 cents, and directions for growing under glass go with each packet.

If you have got a nice warm greenhouse you can start cucumbers; but unless you have had experience you will probably fail.

Grand Rapids lettuce should now be pushing on in all stages of growth; and this probably leads all other growing vegetables as a winter crop. It always sells, and is one of the prettiest crops to manage I have ever had any experience with. Send to the Ohio Experiment Station, Wooster, Ohio, for their bulletin on growing lettuce by sub-irrigation.

You can start onion-plants now—a few of them—and the winter or Egyptian onion can be pushed now or any time later. But you must not keep it too warm. It is emphatically a cold weather plant.

Dig your parsnips—that is, enough to last while the ground is frozen—during any open spell.

The American Wonder peas are very easily grown under glass, providing you have the room to spare.

Peppers and tomatoes can be kept bearing all winter, if you have got a house warm enough, and take the precaution to save some plants before they are killed by frost.

Force rhubarb the same as asparagus; and the price you are offered for it should guide you in regard to when and how much you should start.

Radishes—especially the Scarlet Globe and early frame—require very little heat, and are exceedingly easy to manage. The same with spinach. It will stand more cold than any other plant, probably. In fact, we have nice spinach right outdoors, a great many times, nearly all winter.

If you want to propagate rare and valuable varieties of strawberries, you can easily keep them going all winter, and they can be pushed like spinach and winter onions in cold-frames, without any heat at all. All the expense will be in handling the glass, and giving them ventilation when there is very strong sunshine, and giving them a bath whenever we have a warm rain.

Last, but not least, you can have plants of the new Thoroughbred potato; and if you do not let the frost beat you out some time unexpectedly, you ought to have some new potatoes to plant by planting-time, next May or June.

KIND WORDS FROM OUR CUSTOMERS.

My! but your bee-supplies are most beautiful, and go together so very nicely! "MACK."
Bloomdale, O., Nov. 4.

THE MANUM SWARM-CATCHER INVALUABLE.

By the way, those swarm-catchers—the Manum—after one learns to use them are an invaluable thing. We change ours about on different lengths of poles to suit our swarms, having a pole with a hook on it to reach any of them for the purpose of shaking the limbs and closing the lid; then we raise the basket clear of the tree, and continue to shake the limb, and, presto! your bees are in the basket.

Fairfield, Ill., Nov. 19. T. C. STANLEY.

A KIND WORD FOR OUR BUSINESS HABITS, IF NOT FOR SOME OTHER THINGS.

Mr. A. I. Root:—While I do not approve of raw-meat or hot-water diet, or religious lectures, in business dealings your firm is away above par, and I shall always have a good word for your square dealing.
H. L. JONES.

[Thank you, friend J. Our readers will please notice the expression "raw meat" in the above. It seems strange where this could have come from. If anybody can direct my attention to any physician, ancient or modern, who prescribed raw meat to his patients, I shall be glad to know about it.]

THE PORTER BEE-ESCAPE THE BEST.

I want to say a word in favor of the Porter bee-escape. I have been using a cone escape, and thought they worked very well; but after trying a Porter I have no more use for a cone escape. The Porter clears every bee out of the super, in a very short time. I don't think the Porter-escape can be recommended too highly.
E. R. MAGOON.

Malone, N. Y.

THE CORNELL AND CRANE SMOKER.

The Cornell smoker came to hand last night. Thanks. I have examined it with a good fire in it, and think it is a good durable smoker, and very cheap. I think our men will prefer this to the Crane; but as for me, give me Crane every time. The last tin valve, I think, is all right—at least, it served me the whole season.
P. H. ELWOOD.

Starkville, N. Y., Oct. 31.

A KIND WORD INDEED FOR A. I. ROOT.

Dear Friend A. I. Root:—Whether you write about the entertainment and management of a hotel, about the processes of raising potatoes and of him who raises them, or be it about hanging the buzzards up on trees to dry, or the girl who gets the mail from a moving steamboat, or other of the multitude of life's vicissitudes, I have this to remark: That you possess in an eminent degree the ability to make every line and sentence highly interesting; and, above all, you seem to be able to make every phase of life and action a lesson of betterment and uplifting of human life and character. To me this seems to be the true model of journalism.

JOHN CADWALLADER.

North Madison, Ind., Oct. 19.

FOR THE CUBICAL HIVE.

I am more than pleased with GLEANINGS. It is really a marvel of cheapness and excellence. I can not imagine how you can furnish it at the price, let alone the quantity of extra matter it so often contains. I am much pleased with H. R. Boardman's article on the square-shaped hive (in GLEANINGS of April 15). I found that the long hive was the wrong hive for me, as I found the combs not occupied by the bees in winter got mildewy; but the combs in the top chambers on my square hives did not. I keep the top chambers on my hives all through the winter. It saves a lot of trouble. My broad top-frames keep the bees nice and comfortable in the brood-chamber. The excess of moisture and heat escapes via the end of the frames. The hives are always ready for any flow of honey that may be obtained in my locality, come when it may.

J. F. MUNDAY.

Woodville, N. S. Wales, Australia.

A KIND WORD IN VERY TRUTH, FROM AWAY DOWN IN TEXAS.

Mr. A. I. Root:—Ten or twelve years ago I sometimes worked for a neighbor who was then taking a journal published by you called GLEANINGS IN BEE CULTURE, I believe. I can well remember reading the interesting articles and letters about bees and their ways, etc. But what most interested me was your familiar "talks" that you gave on about the last pages. Although at the time I was only a rather small boy, yet I was interested and concerned about my soul's salvation, and I well remember how I used to read your words on religious subjects when no one was around, so that they would not see how interested I was in them. The impression left on my memory is a pleasant one. Now I want GLEANINGS, if you still publish it — not to find out how to be saved, because I gave my heart and life to Christ seven years ago, and he still has them in his keeping; but I do want GLEANINGS to read and find out how to work with bees properly. Then it will keep me posted on the latest improvements in hives and apary fixtures. I know I shall get a great deal of other information that will interest me. Well, here is a dollar for one year's subscription; and if it is more than that for a year, please let me know.
M. S. LUSBY.

Taylor, Texas.

AN ENCOURAGEMENT FOR WELL-DOING, IN THE SHAPE OF SOME EXCEEDINGLY KIND WORDS.

A. I. Root:—I am an officer of the navy, of many years standing, on the retired list. I have made a study of bees, and am conversant with a good deal of bee-literature. I have several times ordered material of your company for myself and others. At the first reading of your catalog I was struck with a peculiarity it seemed to exhibit, and on that account I have studied it carefully, and my first impression is confirmed. It is one of the few descriptive catalogs issued by manufacturers which seems to be thoroughly truthful, with no attempt to exaggerate or to mislead, or to overpraise any article made or sold by you. It does not hesitate to say that certain articles in the catalog are not recommended. It frequently advises the purchase of the lower-priced article. Throughout it cautions the beginner to avoid useless or unnecessary expense.

Of the articles I have received from you for myself and others, the catalog is faithfully descriptive. Therefore it is with pleasure that I write this to let you know the impression your business methods have made on one person at least, and to most heartily wish you a continuance of your deserved success.
EUGENE B. THOMAS.

Lynn, N. C., Nov. 8.



ONE MAN WITH THE UNION COMBINATION SAW

Can do the work of four men using hand tools, in Ripping, Cutting off, Mitering, Rabbeting, Grooving, Gaining, Dadoing, Edging-up, Jointing Stuff, etc. Full Line of Foot and Hand Power Machinery. Sold on Trial, Catalog Free. 1-24ei

SENECA FALLS MFC. CO.,
44 Water St., Seneca Falls, N. Y.

Italian Bees and Queens. Untested queens, \$1.00; tested, \$1.25. Bees by the pound, \$1.00. Full colonies, \$6.00; nuclei, 2-frames, with queen, \$2.50; 1-frame, \$2.00; queens after Aug., 50 cents. B. P. and W. P. R eggs for setting, 15 for \$1.00.

MRS. A. A. SIMPSON, Swarts, Pa.

USE TAYLOR'S **FUMA** CARBON-BISULPHIDE

For killing **Woodchucks, Prairie Dogs, Gophers and Rats, Insects in Grain, Seeds, etc.** Shipped in 50-pound cans by the manufacturer. Write for pamphlet.

Edward R. Taylor, Cleveland, O.

 In responding to this advertisement mention GLEANINGS

HATCH CHICKENS



Circulars free.
Send 6c. for
illus. Catalogue.

BY STEAM-
With the MODEL

Excelsior Incubator.

Simple, Perfect, Self-Regulating. Thousands in successful operation. Guaranteed to hatch a larger percentage of fertile eggs at less cost than any other Hatcher. Lower priced first-class Hatcher made.

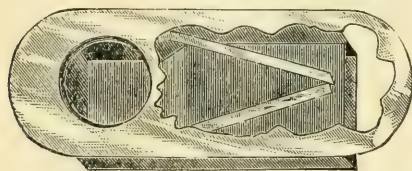
GEO. H. STAHL,
114 to 122 S. 6th St., Quincy, Ill.



TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. **PAGE & LYON MFG. CO.,**
8tfdp New London, Wis.

Advantages of Bee-Escapes.



No sweat steals down the heated cheeks and aching back of the bee-keeper as the result of standing in the hot sun puffing, blowing, smoking, and brushing bees; no time is wasted in these disagreeable operations; and no stings received in resentment of such treatment; the honey is secured free from black or even the taint of smoke; the cappings are not injured by the gnawings of bees; and robbers stand no show whatever. If there are any broken burr-combs they are cleaned up by the bees *inside* the hive, before the honey is removed. **Leading Bee-keepers use the Porter Escape**, and say that without a trial it is impossible to realize the amount of vexatious, annoying, disagreeable work that it saves. The cost is only 20 cts. each, or \$2.25 per doz. As in the past, this escape is manufactured by the Porters, but THE A. I. Root Co. are now the exclusive selling agents for this country. Order of your dealer or of

THE A. I. ROOT CO., Medina, Ohio.



INCUBATORS

We Warrant

The Reliable

To Hatch 80 per cent SELF REGULATING
Durable, Correct in Principle. Leader
at World's Fair. Get in stamps for
new 112 page FREE BIRD, HATCH AND COTE

Irene, POULTRY FOR PROFIT made plain. Bed-Rock Information.
Reliable Incubator and Brooder Co., Quincy, Ill.

110
Yards
High
Class
Cows

For \$350.00. One hundred 2-story hives complete for comb honey; bees and hives in good order. Inquire of **A. LEYVRAZ, Francis, Fla.**

"The Southland Queen."

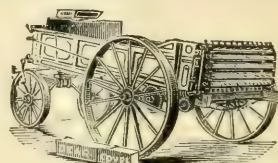
Send for a sample copy of The Southland Queen, \$1.00 per year. The only bee-paper published in the South (monthly). Edited by the Atchley family. Practical, Plain, and Fresh. Also a Steam Bee-hive Factory. Root's Goods, Dadant's Foundation, and Bingham Smokers. Ask for free catalog. We will be ready with queens and bees by the pound for '96. Write for what you want, and make arrangements this winter while you are not busy.

The Jennie Atchley Co., Beeville, Tex.

TRY US. We sell your Poultry, Veals, Fruits and all produce at highest prices. DAILY RETURNS. For stencils, prices and references, write F. I. SAGE & SONS, 133 Reade St., N. Y.

KEMP'S MANURE-SPREADER.

13 YEARS ON THE MARKET. IMPROVED FOR 1895.



SPREADS any kind of manure in any quantity to the acre, and does it better than hand work, even if a man spends ten hours on what the machine will do in two minutes. Sent to any responsible party subject to approval, that will furnish satisfactory references or rating of responsibility. Illustrated catalogue free. **Largest and oldest manufacturers of manure-spreaders in the world.**

KEMP & BURPEE MANUFACTURING CO.,
Box No. 90, Syracuse, N. Y.
Please mention this paper.

ROOT'S GOODS at
ROOT'S PRICES
FOR THE WEST.

Order of us and save freight. Goods at wholesale and retail. A full line of Dovetailed Hives, Sections, Foundation, Extractors, and every thing else of the latest and best.

JOSEPH NYSEWANDER, Des Moines, Iowa.

PATENT WIRED COMB FOUNDATION
Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation
Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS.

12tfdb Sole Manufacturers,
Sprout Brook, Montgomery Co., N. Y.

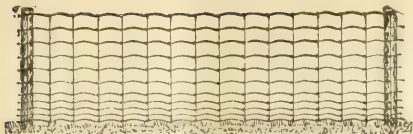


Golden's Feeder.

We can furnish the Golden combined feeder and hive-cover direct from the factory, as follows; without feed-dish, as any dish, such as Simplicity, answers: 1, made up, 30 cts.; 1, in the flat, 25 cts.; 10, in the flat, \$2.00. Send all orders to the A. I. Root Co., Medina, O. For large orders write the undersigned for special prices.

J. A. Golden, Reinersville, O.

In writing to advertisers please mention this paper.

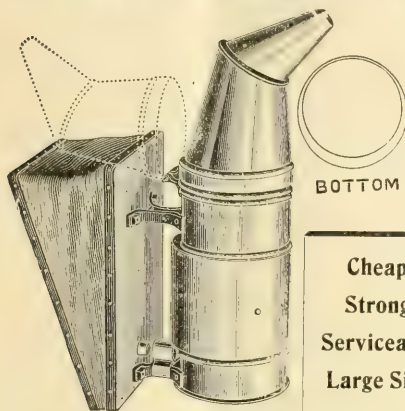


THE PRIDE OF THE ADIRONDACKS.

The new **Park Fence**, 30 miles long, 5 1/2 ft. high, Buffalo strong, 10 rods between tree-posts, roughest ground ever fenced. Built by **PAGE WOVEN WIRE FENCE CO., Adrian, Mich.**

In writing advertisers please mention this paper.

The New Corneil Smoker.



**Cheap,
Strong,
Serviceable,
Large Size.**

JUST THE THING for those who want a first-class smoker at a medium price. Size of cup, 3 1/4 inches; curved nozzle, hinged so as to swing back; legs of malleable iron, secured by bolts. The blast is the well-known Corneil principle. Weight of smoker, only 20 ounces. Here is what one of our customers says of it:

The Corneil smoker is a Dandy with a big D. I have been using it to-day on the crossiest colony of bees I ever saw. I think I could drive a bulldog with it. S. R. AUSTIN.
Amityville, N. Y., Oct. 15.

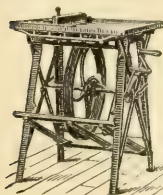
Price \$1.10, postpaid, or 85c if sent by express or freight with other goods.

**THE A. I. ROOT COMPANY,
MEDINA, OHIO.**

MUTH'S HONEY-EXTRACTOR, SQUARE GLASS HONEY-JARS.

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "Practical Hints" will be mailed for 10c in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.



Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will."

Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to

THE A. I. ROOT CO.

HEDDON'S HIVE.

Why it is best of all, and all about how to make and use it, in a 22-page pamphlet, free on application. Address

**James Heddon,
Dowagiac, Mich.**

Headquarters in Missouri For Root's Goods.

Can supply you with all the fixtures used in an apiary. Best goods at lowest prices. Catalog free. **JNO. NEBEL & SON, High Hill, Mo.**

A Rich Dinner Can be Had by Using the

NO-BURN ROASTER,

which is made of materials that soften the heat, cooking whatever you bake or roast, with a heat something like steam or hot water, which allows nothing to burn or dry up; but, with absolutely no attention, whatever is cooked comes out juicy, rich, and very tender, and all the nutrients saved.

It will Make its Price

once a month in making more nutritious food, and will save its price nearly as often by not scorching or drying it. Nothing ever made like it before. It will sell to every family, if properly introduced. We want agents of either sex, and will guarantee big success if they do their part. Write for particulars.

J. K. PURINTON & CO., Des Moines, Ia.

Please mention this paper.

Promptness is What Counts.

Honey-jars, Shipping-cases, and every thing that bee-keepers use. **Root's Goods at Root's Prices, and the Best Shipping-point in the Country.** Dealers in Honey and Beeswax. Catalog free.

WALTER S. POWDER,
162 Massachusetts Ave., Indianapolis, Ind.



CASH FOR BEESWAX

Will pay 27c per lb. cash, or 29c in trade, for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 32c for best selected wax. Old combs will not be accepted under any consideration.

Unless you put your name on the box, and notify us by mail of amount sent, we can not hold ourselves responsible for mistakes. It will not pay as a general thing to send wax by express.

THE A. I. ROOT CO., Medina, O.



ONE MAN WITH THE UNION COMBINATION SAW

Can do the work of four men using hand tools, in Ripping, Cutting off, Mitering, Rabbering, Grooving, Gaining, Dadoing, Edging-up, Jointing Stuff, etc. Full Line of Foot and Hand Power Machinery. Sold on Trial, Catalog Free. 1-24c

**SENECA FALLS MFG. CO.,
44 Water St., Seneca Falls, N.Y.**

In responding to this advertisement mention GLEANINGS

HONEY COLUMN.

CITY MARKETS.

PHILADELPHIA.—*Honey.*—Honey has advanced in this market, with prospect of still higher advance. Comb honey sells quickly, and pure white-clover extracted sells on sight. We quote comb, dark, 10@11; choice, 14@15; fancy, 16. Extracted, 5@6; New York white-clover, 6½; western white-clover, 10. Beeswax, 27.

Dec. 9. W. M. A. SELSER,
No. 10 Vine St., Philadelphia, Pa.

CHICAGO.—*Honey.*—We quote comb honey at the following prices: Fancy white 1-lb. sections, 14; No. 1 white, 13; amber, 12@12½; buckwheat, 10. Extracted, as to quality and style of package, 5@6½. Beeswax, 30.

Dec. 7. S. T. FISH & CO.,
189 South Water St., Chicago, Ill.

CLEVELAND.—*Honey.*—Our market is not quite so good as when we last quoted you on honey. We quote No. 1 white comb, in 1-lb. sections, 14@15; No. 2 white, 12½@13; buckwheat, 10. Water-white extracted, 7; amber, 6. Beeswax, 25.

Dec. 7. WILLIAMS BROS.,
80 & 82 Broadway, Cleveland, O.

ST. LOUIS.—*Honey.*—Market inactive; strained honey, in barrels, 3½@5; in cans, 4½@6. Comb, 10@12, according to quality. No dark wanted at any price. Prime beeswax, 28.

Dec. 9. D. G. TUTT GROCERY CO.,
St. Louis, Mo.

SPRINGFIELD.—*Honey.*—Honey is in only fair demand. White clover is selling at 16@17; buckwheat, 10@12.

Dec. 9. PERKINS & HATCH,
Springfield, Mass.

KANSAS CITY.—*Honey.*—The supply of extracted is not large; demand good for white. We quote No. 1 white 1-lb. comb, 13@14; No. 2, 12@13; No. 1 amber, 12@13; No. 2, 10@11; dark, 8@10; extracted, white, 6@6½; amber, 5@5½; Southern, dark, 4@4½. Beeswax, 22@25.

Dec. 9. C. C. CLEMONS & CO.,
Kansas City, Mo.

CHICAGO.—*Honey.*—White clover and linden in 1-lb. frame sell at 14@15, but other kinds of frames of white honey sell at 12@13; dark and amber grades, of which there is a liberal supply, 9@10. Extracted, dark grades, 4@5; amber, 4½@5; white, 5½@7; prices of different grades vary according to quality, fine flavor always being at a premium. Beeswax, 28@30, and sells upon arrival.

Dec. 11. R. A. BURNETT & CO.,
163 So. Water St., Chicago, Ill.

BOSTON.—*Honey.*—Comb honey is in good demand, but prices remain as before—13@15, according to quality. Extracted is quiet, with a full supply on hand; prices, 5@6.

Dec. 10. E. E. BLAKE & CO.,
Boston, Mass.

CINCINNATI.—*Honey.*—There is no life in the business. All kinds of honey are in good supply, with a rather slow demand for this time of the year. Best white comb honey sells at 12@15 in the jobbing way, while there is almost no demand for all off grades. Demand for extracted honey is fair at 4@7 on arrival. There is a good demand for beeswax at 22@27 for good to choice yellow.

Dec. 10. CHAS. F. MUTH & SON,
Cincinnati, O.

NEW YORK.—*Honey.*—We have a fairly good demand for white comb honey at 12@15, according to quality and style of package. While the market is well cleaned up of glassed sections and pasteboard cartons, unglassed is plentiful, having just received two more big carloads from California. Buckwheat comb is very dull, with large stocks on the market. We quote 9@10; but, to effect sales on quantity lots, it is necessary to shade quotations. Considering the limited outlet and large supply, we would not encourage shipping of buckwheat honey, as we could not render returns in reasonable time. The market on extracted is quiet, at unchanged prices. No demand as yet for extracted buckwheat. Beeswax is in good demand, and sells at 29@31.

Dec. 9. HILDRETH BROS. & SEGELKEN,
28 & 30 West Broadway, New York.

MINNEAPOLIS.—*Honey.*—Since last writing you there has been little or no change in the honey market here. A carload of California comb honey came in and is selling at 14@15. There is a fair supply of water-white extracted which we quote at 6½. White amber, 6; yellow amber, 5@5½; all in 60-lb. tins. Beeswax, 28@35.

S. H. HALL & CO.,
Minneapolis, Minn.

BUFFALO.—*Honey.*—Honey market is very quiet, and very little doing. Fancy is in light supply, and firm at 16; No. 2, 12@14; buckwheat is dull at 8@10. Extracted dull. Beeswax, 25@28.

Dec. 7. BATTERSON & CO.,
Buffalo, N. Y.

KANSAS CITY.—*Honey.*—The demand for comb and extracted is good. One-lb white, 13½; amber, 12; dark, 10. Extracted, white, 6½@7; amber, 5@5½; dark, 4½. Beeswax, 22@25.

Dec. 11. HAMBLIN & BEARSS,
Kansas City, Mo.

ALBANY.—*Honey.*—There is a large stock of buckwheat comb honey on our market, and it is selling very slowly at 9@10 for 1-lb. combs, and 8@9 for 2-lb. Clover continues scarce, and No. 1 sells at 14@15. There is but little demand for extracted yet. We look for an improvement after Jan. 1st.

Dec. 9. CHAS. MCCULLOCH & CO.,
Albany, N. Y.

DETROIT.—*Honey.*—Best white comb honey is selling at 14@15, with fair demand; dark grades, 12@13; extracted, 6@7. Beeswax, 26@27.

Dec. 9. M. H. HUNT,
Bell Branch, Mich.

FOR SALE.—20 boxes extracted honey, two 60-lb. cans in each box. Price 6½¢ per lb.

JNO. A. THORNTON, Lima, Ill.

FOR SALE.—11,000 lbs. basswood honey, equal to the 500 lbs. I had in our State exhibit at the World's Fair. Price, 8 1-gallon square cans in a case, \$6.00; 1½ 1-gallon cans in a case, \$6.30.

F. A. BEALS, Salix, Ia.

Extracted honey in barrels at 6½ cts., or in 60-lb. cans at 7c.

CHAS. DADANT & SON,
Hamilton, Hancock Co., Ill.

WANTED.—To sell quantity lots of fancy comb honey. Also to sell water-white extracted honey in 60-lb. cans.

B. WALKER, Evart, Mich.

ALFALFA HONEY, very white, thick, and rich. Two 60-lb. cans at 7c. Same, partly from clover (tinted), 6c. Samples, 8c.

OLIVER FOSTER, Las Animas, Col.

ALFALFA IN ARIZONA.—We will sell you alfalfa honey F. O. B. Phoenix at 4½c in 1000-lb. lots or more. Less than 1000 lbs. at 5c in five-gallon cans. Car lots a specialty.

J. P. IVY,
Secretary Bee-keepers' Association,
Phoenix, Maricopa Co., Arizona.

CONVENTION NOTICE.

The Wisconsin State Bee-keepers' Society will meet Feb. 6, 7, 1896, in the Capitol building, Madison. Program later.

N. E. FRANCE, Sec., Platteville, Wis.

The Southwest Texas Bee-keepers' Association meets at Wharton, Texas, at the apary of W. O. Victor, Dec. 26 and 27. Everybody is invited, and bee-keepers especially. Come, and let's have the largest meeting ever had. Low rates on all railroads. Remember the date.

J. O. GRIMSLEY, Sec., Beeville, Texas.

Those intending to attend the special meeting of the Illinois State Bee-keepers' Association, in Chicago, Jan. 9 and 10, will please notice that railroad rates will be on the certificate plan—certificates to be taken at place of purchasing ticket, and issued at Chicago, before returning, by the agent of the Cycle Exhibition Co., and vised by the joint agent of the railway lines. Tickets going may be obtained at any time between Jan. 1st and 11th, and return at any time between Jan. 4th and 15th.

JAS. A. STONE, Sec.

Honey for Sale!

2500 lbs. of A No. 1 amber fall honey for sale, in 60-lb. cans, 2 cans in a case; price, single can, 8c per lb.; 2 or more cans, 7c. Send 2 cts. for sample. Address E. T. Flanagan, Box 783, Belleville, Ill.



EARLY-ORDER DISCOUNT.

Only two weeks of this year remain in which to take advantage of the December four-per-cent early-order discount. Look over your stock of supplies and send us your order for such things as you are in need of for next season. We are in position to give your orders our very best attention.

HONEY.

We are still prepared to supply choice comb and extracted honey at very low prices. Shall be pleased to hear from those interested, stating quantity they can use. We have choice alfalfa comb in 1-lb. sections, 24-lb. cases, at 15c per lb., in lots of 4 cases or over. The same honey in No. 2 or unfinished sections, 3c per lb. less. Extracted California and alfalfa, in 60-lb. cans, at 7c in lots of 2 cases or over.

BEESWAX WANTED.

The wax market still continues firm, with a decided upward tendency in price. Those who have it for sale can now realize a good price. If our advertised price is not equal to other offers you have, write us, stating quantity you have to offer, and the price you are offered. We need wax, and can afford to pay as good a price as anybody. Let us hear from you.

YOUR OWN WAX WORKED INTO FOUNDATION FOR YOU.

With our new process of sheeting wax we are much better able to work up individual lots of wax into foundation. There are some who have a decided preference for having their own wax, and go so far as to invest in a foundation-mill in order that they may have foundation made of their own wax. We are prepared to receive your wax, and work it into foundation of our superior new process at the following rates, you paying charges both ways. For not less than 25 lbs.:

Heavy and medium brood foundation, 12c per lb.	
Light brood " " " " " "	15c " "
Thin surplus " " " " " "	20c " "
Extra thin surplus " " " " " "	25c " "
Lots of 200 lbs. or more at special prices on application.	

KIND WORDS FROM OUR CUSTOMERS.

I can't see how I could get along in the "bee biz" without your valuable semi-monthly.
Albuquerque, N. M., Dec. 3. J. R. McCOWAN.

The queen came O K; and to say I was pleased does not express it; therefore please accept thanks, and I have just been testing the Porter bee-escape. They are just what every bee-keeper should have.
Starkville, N. Y. A. H. SMITH.

FIVE QUEENS ALIVE TO AUSTRALIA.

The bees arrived all right; 5 out of the 9 were alive, and as lively as if they had just come out of the hive. The other 4 succumbed on the passage. I am well satisfied, as I did not expect otherwise.
Auckland, N. Z. FREDERICK RICHARDSON.

THREE QUEENS ALIVE TO AUSTRALIA.

I am pleased to be able to report that 3 out of the 5 queens arrived alive by the last mail. The two in envelopes were the ones dead, I think, but of this I can not be quite sure, as I was not present when they were opened, and my son was not aware I was desirous of knowing whether an envelope was an improvement on the method of packing. A close-fitting envelope, such as you used, is not what is wanted, but a large one similar to what is used by solicitors for deeds, etc. T. G. BRICKTELL.
Dunedin, N. Z., Oct. 29.

MORE ABOUT RAW BEEF.

In reply to GLEANINGS I would say that Dr. J. W. Sykes, Penn Ave., Pittsburg, in 1874, put my brother

on raw beef, to be scraped as lint is scraped from cloth. It was not used exclusively, but it built him up, and made blood the quickest of any thing I ever saw. I use it with a little vinegar and black pepper on it, because I like it. G. W. MARTIN.
Saltsburg, Pa., Dec. 5.

HOW TO KEEP SEED POTATOES FROM SPROUTING DURING THE WINTER.

Friend Root:—The following may be of use to you: Last winter we saved more Freeman potatoes than we afterward decided to plant, just such as we sent you. Some 40 bushels of these, as I remember, were sold to The Robertson Celery and Produce Farms, Kearney, Neb. The manager wrote me then that he could get seed cheaper, but wished to try ours. Nov. 16 he wrote me that the Freeman seed got from us did finely. Tried side by side with other seed of the same variety, purchased elsewhere, the plants from our seed were so strong and healthy that they seemed like a different and stronger-growing variety. This is exactly what we thought our seed would do when we sent it out. We haven't grown potatoes all these years for nothing. Kindly shovel over with a wooden shovel the New Queen and Freeman potatoes you have once a week, when it becomes necessary, beginning before any sprouts start to speak of, and keep them cold, and I think they will give as good, or better, results as the seed sent to Kearney. T. B. TERRY.
Hudson, O., Dec. 7.

Mr. Root:—I bought of Mr. Craig last spring four quarts of his Craig Seedling potatoes; planted one eye in the hill. They froze once after they were up, then there were twenty hills missing. They kept green till the frost killed them. I dug 345 lbs. of nice potatoes, or 5 3/4 bushels, allowing 60 lbs. to the bushel. I think them very good cooking potatoes.
Vienna, N. Y., Nov. 9. W. P. ABEL.

Wants and Exchange Department.

Notices will be inserted under this head at one-half our usual rate. Advertisements intended for this department must not exceed five lines, and you must say you want your advt in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 c. a line will be charged and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange foundation-mills and honey-extractors for honey or wax.
I. J. STRINGHAM, 105 Park Place, New York.

WANTED.—To exchange 200 colonies of bees for anything useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange safety bicycles, Barnes No. 4 1/2 lathe for metal work, Odell type-writer, for honey, beeswax, or gasoline or kerosene engine.
J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange Japanese buckwheat for bee-keepers' supplies or fdn. mill.
PHILIP RATH, Oraville, Jackson Co., Ill.

WANTED.—To exchange peach-trees, and Abondance, Burbank, and Satsuma plum-trees for Italian bees.
JOHN CADWALLADER,
North Madison, Ind.

WANTED.—A young man with small family to take charge of a fruit-farm. German preferred. Will furnish good house and give good wages.
Write to J. B. MURRAY, Ada, Ohio.

WANTED.—To exchange 26-in. planer and matcher and scroll-saw (for power) for wood-working machinery or cash. GEO. RALL, Galesville, Wis.

WANTED.—To exchange chaff hives in flat, and tin-type outfit for bicycle.
WM. DE WORTH, Bordentown, N. J.

YOU "CAN'T AFFORD

very much. Send me a few cents in stamps and I'll send you a bundle of back numbers (the more stamps sent the bigger will be the bundle), and if, after looking them over, you can suggest any improvement, any plan whereby the REVIEW can be made better, that I think well enough to adopt, the REVIEW will be sent you free for 1896.

W. Z. Hutchinson, Flint, Mich.

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If you have never seen a copy of the **weekly AMERICAN BEE JOURNAL** send your address for a Free Sample; or better, for 25c. a "good taste," -17 numbers, 4 months—will be sent you. Why not try this trial trip?



be found ALL that is really new and valuable in the other bee-papers. This is the bee-paper. Address, **GEO. W. YORK & CO., 56 Fifth Ave., CHICAGO, ILL.**

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Price list and catalogue free. 42nd year. 1000 acres. 29 Greenhouses.

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Write for free, illustrated catalog and price list.

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**BUFFALO, N. Y. Unsurpassed Honey Market
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. and Prompt**

1896

In responding to these advertisements mention this paper.

Special Prices to Reduce Stock.

In order to reduce my stock of a few staple supplies I offer the following, while they last, at **10 per cent discount.**

2 No. 5 Novice honey-extractors; 350 No. 13, 8-frame wood bound zinc honey-boards; 100 No. 12, 10-frame wood-bound zinc honey-boards; 25 No. 11 Dov. chaff hives; 30 No. 11 Dov. chaff hives; 100 No. 15 Dov. chaff hives; 20 No. 15 Dov. chaff hives; 18 old-style 2-story chaff hives.

These are all fresh new goods of latest style, in stock here about six months only. Rather than carry them over I offer them at above special discount.

W. A. Selser,

No. 10 Vine St., Philadelphia, Pa.

World's Fair Medal

Awarded my **Foundation**. Send for **free samples**. Dealers, write for wholesale prices. Root's new **Polished Sections** and other goods at his prices. **Free Illustrated Price List** of every thing needed in the apiary.

Bell Branch, Mich.

M. H. Hunt.

YOUR CATALOGUE.

Let us print it! Complete facilities, neat and artistic work, moderate prices. Send sample for estimate.

S. C. WATTS, Clearfield, Pa.

W. O. Victor, of Wharton, Tex., took

45,000 Lbs. of Honey in 1894.

He offers Italian Queens—good, old-style honey-queens—untested, first order, to any address, at 50c each. Also bees in any quantity; 450 colonies to draw from. **Root's goods constantly in stock.** Prices to suit the times. Buy near home, and save freight.



Vol. XXIII.

DEC. 15, 1895.

No. 24.

STRAY STRAWS

FROM DR. C. C. MILLER.

THE PROPOSED CONSTITUTION, as given on p. 892, has the approbation of the editor. Very decidedly it hasn't mine, at least on some points. [Well, on what points?—Ed.]

DOUBLING UP colonies, as mentioned by friend Aikin, page 890, seems to be just the thing, and I don't know but it is; but so far, when I've tried it, it didn't pan out well.

S. E. MILLER wants to know, p. 893, why I'd nail numbers to hives instead of carrying them in my head. Well, my head isn't large, and I've better use for what little room there is there.

WHEN SNOW COMES a foot deep in November, as it did this year, there's lot's of comfort in thinking, "How glad I am I got the bees in before this cold weather!" And the deeper the snow the deeper your comfort.

STERN WINTER now has come;
No more the joyful home
Within the busy hive is heard;
Silent, silent, dome.

The bees are all now home,
Till spring to life again has steard.

CRIMSON CLOVER. Michigan Experiment Station Bulletin says: "In England, where this clover is grown with some difficulty, it is said to winter-kill if sown on newly plowed land, but to pass the winter uninjured if merely harrowed in on stubble."

A SLANDER on A. I. Root. *New convert to the beef and hot-water treatment.* "Mr. Root wants me to drink hot water an hour and a half before every meal, and here I've been drinking for the last forty minutes; but I'll be jiggered if I can swallow another drop."

DID YOU EVER NOTICE that bees are unusually quiet directly after a windy time? I don't mean during the wind, for then you can't hear them for the noise of the wind; but I mean in the following calm. I suppose it's because the

wind has thoroughly ventilated the cellar, and the bees are not suffering for fresh air.

THE EDITOR fudges at the idea of my leaving one colony of bees outdoors, and asks, "Why don't you try more?" Because the last time I tried it I tried ten and lost them all. Fudge! yourself. [So I will fudge! so, there. I don't believe you had 'em packed right.—Ed.]

A CONFECTIONER of Neudorf, says *Le Bulletin d'Alsace-Lorraine*, found it convenient to scald the bees that entered his premises. The bee-keepers sued, and the authorities obliged him to screen his premises against the bees, and to keep his empty casks and cans out of their reach.

SOME BITTER EXPERIENCE resulted from putting a second story on top, as described by F. L. Murray, p. 890. A cold spell came, and the bees couldn't keep both stories warm. Since then I put the second story of empty combs *under*, and then it can make the bees no colder. the rest of his practice seems good.

THAT MAP showing the region of small and the region of large hives will be a rather complicated affair when such men as friend Crane want different-sized hives for apiaries not ten miles apart. [That map, I am afraid, will never materialize; for bee-keepers don't respond to the call for information.—Ed.]

I HAVE SAMPLES of the new foundation mentioned on p. 912. It is fine and beautifully clear, the only question being whether the bees will like it more or less thereof. How is that? [That is to be determined; but from experiments made last season for Mr. Weed, the inventor of the process, it seemed that the bees took to it more readily.—Ed.]

A. I. Root thinks, p. 910, that his flat-pea roots have not gone the great distance claimed. Perhaps not; but are you sure, friend Root, that you followed the roots to the end? This week I saw a gooseberry-plant that had been very carefully dug. It was a cutting set in the open ground last fall, so it was one season's growth. With ordinary digging the roots might have been 8 or 10 inches long. As it was, they measured 34 inches! [The roots of the

flat pea do go down a great way, doctor; in fact, I have never been able to ascertain how far. All I meant to complain of was that the plants did not stand drouth, at least not on our clay soil, as we had been led to suppose they would. They kept alive, it is true, but they got awful yellow and sickly-looking.—A. I. R.]

IT'S A CLEAR CASE, that the general good demands that bees be kept out of candy-factories, cider-mills, and such places, and it's nearly as clear that the owners of such places should fasten them out rather than to have bee-keepers fasten them in, and there's no reason why bee-keepers of this country should not at once be up with the French in demanding proper laws on the subject.

IN ONE RESPECT, bee-escapes to be left on over night will not be as good in the future as they are now; for when they have been used longer it will become known to some of the light-fingered gentry, and it will be very convenient to come in the night and carry off a few supers. [It will be seldom, I think, that the "light-fingered gentry" will know enough about bees or escapes, even when these articles come into more general use, to know when they are on, and some escapes don't show from the outside. But suppose these chaps do come to know the purpose of the escape: that knowledge would also imply a knowledge of how to get the honey off, escapes or no escapes.—Ed.]

WHEN SOME ONE DIES there's more commotion about his death than about his birth. Just the other way with bee-journals. There's a big hullabaloo at their birth, but not a word said about their final illness, and generally you never hear they're gone till they've been dead a long time. Been several deaths lately. Died very peacefully. [Let's see. Four have died in almost as many months. The publisher of one of them specially requested that I forbear mentioning its demise, perhaps because he couldn't bear to see its obituary.—Ed.]

CAN BEES KEEP gently on the move all winter long in the hive, and remain healthy? Or if at the right temperature, do they lie motionless and entirely quiet most of the time, awaking and moving about by spells? If the latter, how far apart are the periods of activity? Or how does a colony wintered in best condition spend its time in winter, any way? If those who have bees in cellar would take notes this winter, and report, we might have something settled by spring. Friend Taylor could help out. [Mr. R. McKnight has something on this subject in this issue.—Ed.]

SHAMROCK, the national emblem of Ireland, is nothing more nor less than our much-valued white clover. It is worn in honor of St. Patrick, who is said to have plucked a leaf of this plant to represent the Trinity. The botanical name is *Trifolium repens*. It is also called Dutch clover, white trefoil, white meadow trefoil,

creeping trifolium, creeping clover, stone clover, honeysuckle-grass, honeysuckle-clover, and, in Germany, sheep-clover, field, bee, and little clover. The French name is triplet, trefle blanche, or blanc; Spanish, trefol blanco; German, weisser Klee; Italian, trifoglio.

SAY, MR. EDITOR, there's no charge against the Atchleys in that Straw about the series copied from *American Bee Journal*. I think the *Southland Queen* mentioned that it was so copied; but I thought you hadn't recognized it in its new setting. [Why didn't you say the *Queen* acknowledged the source of the lessons? Yes, I find that the Atchleys did give credit to the *American Bee Journal* in their September issue, but not in the October number to which I referred. Now, doctor, as you helped me "put my foot in it," will you help me pull it out? I hereby tender my apology to *The Queen* for not being better acquainted with its columns.—Ed.]

BOTTOM BARS. "If wider than $\frac{3}{4}$ inch," says the editor, p. 888, "there is almost sure to be a useless bee-space between the bottom edge of the comb and the bar." What proof have you, Mr. Editor, that such space will be any worse with $1\frac{1}{8}$ inches than with $\frac{3}{4}$ inch? [Only observation. I have noticed that, the narrower the bar, the more inclined the bees are to build down to and fasten to it. We have a good many bars $\frac{3}{4}$ inch wide, with the combs attached to them. We had a few such comb attachments when the bars were $\frac{7}{8}$ inch wide. We at one time had a few frames with bottom-bars one inch wide. I think there were no combs attached to these. We never, that I remember, had bottom-bars $1\frac{1}{8}$ inches wide; but the foregoing would indicate that they would be worse still.—Ed.]



LARGE VS. SMALL HIVES.



Stop the hive discussion! oh, stop it! I am a ruined man — entirely ruined! or I have made my fortune! After the discussion had gone on some time I saw clearly that I was using too large a hive. The majority in GLEANINGS said so, and the majority must be right. So I went to work and sawed off 4 inches

from the back end of my hives. Then I settled down and was contented. But I watched

GLEANINGS and the hive discussion with a keen interest.

What is this—this thunder of the warhorse, rushing on to the battle, eager for the cannon's roar and the rattle of musketry—the riders shouting victory! as they hurl themselves on the foe? It is an overwhelming victory for the *larger-hive* men.

Then I was in a bad fix. I could not lengthen out my hives again, but I could do the next best thing—I could give the bees more room in front, so I added 4 feet to my alighting-board.

The discussion went on—always went on—till I made out a large majority for *smaller hives*. What could I do? There was no other way than to cut off 4 inches more.

After this came a wild war-whoop from the West that bore down all before it, and scored a complete victory for the *larger-hive* men. I added 4 feet more to my alighting-board.

Then there came a wail—a plaintive and beseeching wail of sorrow—from the far East—a heart-rending plea for *smaller hives*. I could not resist it, and I cut off 4 inches more.

Then I was called away from home, and could not consult GLEANINGS till I returned. When I did get hold of it I read the discussion eagerly, and there was a large majority for *smaller hives*. So I cut off 3 inches more. After I had completed the work I found I had got hold of the wrong number—not the last one. The latest GLEANINGS gave a big majority for *larger hives*. I added 4 feet to my alighting-board.



SKYLARK'S HIVE.

Then there came to my heart, voices—voices from the far-away South and the far West—voices laden with the perfume of the orange and the nectarine—sweet, tender, gentle voices, pleading for a *larger hive*. I immediately added 4 feet to my alighting-board!

Then for a good many issues the vote wavered, balanced, was a tie, or neither party had a decided majority. Then came another great majority for *smaller hives*, and of course I had

to saw off 2 inches more. This leaves my hive just 2 inches long. Now, if this discussion continues with large majorities for *smaller* hives I shall have to saw off the front door and let the bees camp on the alighting-board. Here is a picture of my hive *now*.

Do you believe this hive will be a success, or am I a ruined man?

FRIEND JONES APPEARS.

I was just about to mail you this splendid experiment of mine when friend Jones came over to see me.

"Hello, Skylark! what does all this mean—the sun-extractor full of brood, young larvæ, eggs, and honey—this large amount of wax, and this great pile of kindling-wood?"

"Well, Jones, I have just completed a great work. You know that GLEANINGS has, for the last six months, had a hive discussion on hand;" and then I told him the whole story.

"I never heard or read of the like of this—you are justly called the 'idiotic giant.'"

"Now, Jones, you know that refers only to the large amount of undeveloped intellect baled and stored away in my mind."

"Yes, truly it is baled, and baled so tightly that it has as much sense in it as there is in a bale of hay. Do you see that plank there? Why didn't you get a dozen or two of these, and saw them into blocks? You could have put in a block, and then a bale of your undeveloped intellect, and then another block and bale, and thus made the hive as small as you pleased. The blocks and bales would act equally well as dummies."

This was so unkind that I could do nothing else than burst into tears.

"Now look here, Skylark, be something of a man. You have lost \$600, but you can get back there. Buy a hundred new hives. Take that thing you call a hive, and cut some off the bottom. Set it, bees and all, in the side of the new hive, and fill up with frames. Put on the honey-boards and top boxes, and feed \$200 worth of sugar. You may be able to build them up by the next honey-harvest; but if you don't do this you are a ruined man."

Now, I don't care what is said against my moral character. The people know I am not a bad man, and won't believe it; but when any one tells them I am a fool, they *will* believe that, for they have often thought so themselves.

ANOTHER WOULD-BE SUICIDE.

The plea for old oil-cans, by friend Butler, on p. 769, is certainly a great advance in apiculture—backward. When you can teach a man to save a dollar and lose three, you are certainly doing him a great service—likewise backward. He pays 20 cents for his cans and 25 for his case—45 cents; a new case and cans costs 80 cents; so he is ahead 35. Now, when he goes to sell, the trouble comes in. No dealer will give as much

for honey put up in oil-cans by half or three-quarters of a cent as he would in honey-cans; so he saves 35 and loses from 60 to 90 cents. Besides, if he attempts to put them up in old oil-boxes, which he can also get cheap, he will lose 6 lbs. of honey in the tare, for they and the cans weigh only 12 lbs.; but the dealer exacts the full tare. An old oil-can is a good deal like a man of bad character—it always smells of it. No honey-producer here, of any note, uses oil-cans for honey. They would not use them if delivered free at the apiary! No, let us be honest; let us send out nothing but pure stock, with every package new, neat, and clean. It is the only way to success in our calling.

CALIFORNIA STATE CONVENTION ECHOES.

Nov. 18 and 19, Prof. Cook presided over a gathering of about sixty earnest and go-ahead bee-keepers in the Chamber of Commerce, Los Angeles.

The forming of some kind of coöperative association, either independent or in conjunction with the fruit-men, was the topic that had precedence at all times over all other topics.

It was figured out during the convention, that extracted honey, on an average, for a series of years, costs $4\frac{1}{2}$ cts. to produce, and that the average crop is 65 lbs. As the present price of honey is from 3 to 4 cts., it is evident the bee-keeper is getting next to nothing for his labor.

The present slipshod method of marketing honey is largely to blame for the low prices.

The citrus fruit-men are so well organized that they can estimate several months in advance the probable number of car-loads of fruit there will be to ship. The honey-producer has never yet been able to tell how much honey has been produced even months after its disposal.

With these and many other facts before them, the association appointed a committee of five to formulate some plans for coöperation in the sale of honey. The committee deliberated several hours, and they reported in favor of independent action, and upon lines similar to the Fruit Exchange, and recommended the forming of a

CALIFORNIA HONEY EXCHANGE.

Their report was unanimously adopted, and the committee continued. Their work is an arduous one, and may take many months in accomplishment; but the staying qualities of the committee lead bee-keepers to hope for success. Geo. W. Brodbeck, W. T. Richardson, R. Dunn, Dr. Millard, R. Touchton, original committee, to which were added Prof. Cook and J. H. Martin.

Abbott Kinney gave an interesting talk upon eucalyptus. There are 150 varieties. The

Robusta, Fisatola, and Eugensitas, are especially rich in the secretion of nectar, and bloom in that portion of the year, from November to March, when bees get but little honey from other sources. California bee-keepers were recommended to plant those species that produce the most honey.

The pepper-tree is not considered a good honey-producer. Where enough of it has been secured, the testimony seemed to class it as dark, and with a peppery flavor. Mr. Wilkin, who has had long experience, and ought to know, says that this peppery flavor comes from a weed known as "blue curl."

Alfalfa is drawing more and more attention as a honey-producer, and in the central portions of the State it is the leading source from which the honey is obtained. It is destined to become the leading honey-plant in many other portions of the State.

Mr. J. S. Harbison sent his compliments to the assembled bee-keepers in the form of an interesting and instructive letter. The following is a sample nugget: "It is safe to say that no product of soil or water, whether fish, flesh, or fowl, or that of fruits in all the varied forms in which they are marketed, is sold at so low a price, relative to excellence, as is that of our highest grades of California honey." "Oursage honey has no superior in any country, and should sell for fully 50 per cent more than it has for the past few years."

Diseases of bees were discussed. The new bee-disease seems to be more prevalent near the coast than in the interior. Henry Otto, in a communication, claimed to have cured foul brood with the new drug, creoline.

Resolutions of respect to the memory of the late L. L. Langstroth, and sympathy to his family, were passed. Also, that the California bee-keepers would coöperate with the bee-keepers of the world in the erection of a suitable monument to the memory of the father of American apiculture.

Nearly all of the old officers were re-elected, and the meeting adjourned.

Will California bee-keepers, who do not receive notices of our meetings, send their address to the secretary with the address of their neighboring bee-keepers? The secretary wishes to keep every bee-keeper on this coast posted in relation to the *California Honey Exchange*.

Jacob Alpaugh, of Ontario, Canada, spent last winter in California, and was so well pleased with our State and our association that he is here now with his whole family, and again attended our meeting. In spite of what John Dryden said at the national gathering, he is bound to annex himself and belongings to Uncle Sam. Plenty of room here, gentlemen; flowers the whole year round, and no frozen toes.

JOHN H. MARTIN, Sec.

Bloomington, Cal., Nov. 20.

LANGSTROTH MEMORIAL.

Langstroth as a Man, Minister of the Gospel, College Professor, Editor, Bee-keeper, and Inventor.

Interesting Reminiscences from His Life History.

Tributes of Praise to His Memory.

A Few Factors that have made American Apiculture what it is.

CONTRIBUTIONS FROM THE EDITOR OF THE BRITISH BEE JOURNAL; FROM THE EDITOR OF THE BIENENZEITUNG (GERMAN); FROM THE EDITOR OF THE REVUE INTERNATIONALE D'APICULTURE (SWISS); FROM THE FORMER EDITORS OF THE AMERICAN BEE JOURNAL; FROM HIS FORMER PASTOR; FROM CONTEMPORARIES OF HIS EARLY BEE-KEEPING EXPERIENCES.

REV. L. L. LANGSTROTH.

Palmas qui mernit ferat.

THE EVOLUTION OF MOVABLE FRAMES; LANGSTROTH'S GREAT STEP FORWARD.

By Thos. Wm. Cowan, Editor of the British Bee Journal.

It was certainly with profound sorrow that I learned of the sudden death of Mr. Langstroth, and I am sure this sorrow must be shared by a large number of bee-keepers who not only knew him personally, but also through personal correspondence with him. And yet these are few compared to the still greater number who must know him through his work, and who will not only have to mourn his loss as a benefactor, but also as the "father of American apiculture."

Langstroth's name is closely connected with his invention, and this has certainly placed bee-keeping upon an entirely different footing to what it occupied before the advent of the frame hive. There has been a great deal of controversy as to who was the original inventor of the frame principle. It was not till 1851 that Langstroth invented his hive, and frames had already been in use some years previously. They were, however, not of any practical utility, for the hives containing them were complicated, or so exceedingly expensive that they could be looked upon only as luxuries for rich amateurs rather than hives to be used by bee-keepers for business purposes.

Putting Huber's leaf hive—which was undoubtedly the first on the principle of movable frames—and similar hives, on one side as not being suited for general bee-keepers, we come to the hive of Major Munn, who first employed hanging frames in 1834. There was no lateral movement to these, and for examination they were drawn up into a glass case. Nor were they interchangeable, as are the frames

of the present day. The cost of such a hive was from \$35 to \$40, and consequently they could be used only by the wealthy amateur.

In 1841 Prokopowich invented his frame hive, which was a rather remarkable one, and of special interest just now, as the principle he advocated has recently been revived. His hive consisted of two body boxes having frames with wide bars, openings being cut out to allow the bees to pass from one box to another. The super was fitted with similar, but shallow frames. There was a small space admitting of slight lateral movement of the frames, so that they could be drawn out without crushing bees. But the principal feature of this hive consisted in its being constructed for inversion, or being turned upside down. Bee-keepers of the present day will have no difficulty in recognizing this principle, and will, perhaps, note to whom they should give the credit of the invention. Put to practical use, this hive did not answer the expectations of its inventor, and the bee-keeper found that, in strong colonies, it was impossible to remove the frames without crushing bees. Moreover, the frames became so propolized and firmly fixed together that it required a strong wrench to pull them asunder.

In 1843 Debeauvoys introduced his frame hive. This was an improvement upon the others, but it did not come up to what was required. The frames were awkward in shape, and it was difficult to insert them into, and remove them from the hive. They could be taken out only consecutively, like the frames of the German hives of the present day. The hive also, being too complicated, was of no use practically.

It was not till 1851 that Langstroth invented his frame hive, which, from its simplicity, cheapness, and practical adaptability to the purposes required, has conferred a lasting boon on bee-keeping. There are no doubt some who think other methods are quite as good; but a very large and daily increasing number of bee-keepers on this continent of Europe recognize that the principle introduced by Langstroth—and first published by him in 1852 in his book on the honey-bee—is the correct one. The opening of the hive at the top, the perfect interchangeability of the movable combs, and the lateral movement of the frames, have given the bee-keeper the most perfect control over his bees, and have more than justified Langstroth's expectations when he wrote the note in his diary in 1851, that "The use of these frames will, I am persuaded, give a new impetus to the easy and profitable management of bees."

We here in Europe have for a long time held Langstroth in the highest esteem; have appreciated his invention, and only a few years ago we—British bee-keepers—did ourselves the pleasure of electing him an honorary member of the British Bee-keepers' Association, as a

recognition for the services which he had rendered to apiculture.

There are not many bee-keepers of the present day who can look back 40 years, or who know how Mr. Langstroth was treated, even by those who were quick to perceive the advantages to be derived from his invention; or how they pilfered his best ideas, and even patented them, and how he was defrauded of his just dues. Nor do they know that these infringements of his rights led to costly litigation which swallowed up all his well-merited gains. As one of your own writers (Prof. Cook) has written in GLEANINGS: "This whole matter is the dark page in American bee-keeping history, and we gladly pass it by without further comment."

Langstroth was not in flourishing circumstances; and although a fund was raised to assist him in his old age, the sum realized fell very far short of what it should have done, more especially when we consider what benefit has been derived from his invention. Although bee-keeping here is not carried on as a business—such as it is in America—it was a real pleasure to British bee-keepers to be allowed to add their mite toward the fund raised. This distinguished man would no doubt have suffered less had he been in affluent circumstances, and able to take change of air at the approach of his periodical attacks of illness; but his modesty prevented him from appealing to his friends. His allusion to this, and his gratitude to God for what had already been done for him, was well expressed in his letter to GLEANINGS in 1892, and will be found on page 609.

My own acquaintance with Mr. Langstroth was through our correspondence. I had always admired his book, not only for the information it contained, but also for the purity of its phraseology, which placed it at the head of all American works on apiculture. In my correspondence with him I found he was not only a great bee-master, but also a thorough Christian gentleman. I have always regretted that, when I was in America, I was not able to see him, owing to his suffering at the time from his head trouble. I have had a good many letters from him, and on my return from Africa he thanked me most heartily for investigating and reporting upon the merits of the bees of Northern Africa. It was only quite recently that I had several letters from him, and among other things he invited me to be present at the meeting of the North American bee keepers' convention at Toronto. He also asked me to make some experiments in feeding bees with malted milk, which he had been using with benefit to himself. He had been reading my book, "The Honey-bee," and, referring to it, he observed, "What I wrote to you about the malted milk meets with confirmation in

what you say about chyle food. Let the mixture be made with hot honey-water, and how near it seems to come to chyle!" I regret that this was his last letter to me, and that, since its receipt, I have not had the opportunity of trying the experiment. He also told me that he had written confidentially to several friends, and had asked them also to try the experiments; so if any thing comes of it I hope Mr. Langstroth's name will not be forgotten in connection with it.

I hope you will excuse me for writing so long a letter. I could say much more, but I am sure there are others, much more qualified, who have been intimately associated with him, who could give far more interesting reminiscences of him than I am able to do. I was, however, glad to be able to write a few words in testimony of what Mr. Langstroth had done for apiculture, and also to show you the respect we have entertained for him, and the admiration with which we have looked upon him in this country.

We can truly sympathize with our American brethren in the loss which they, as well as bee-keepers generally, have sustained.

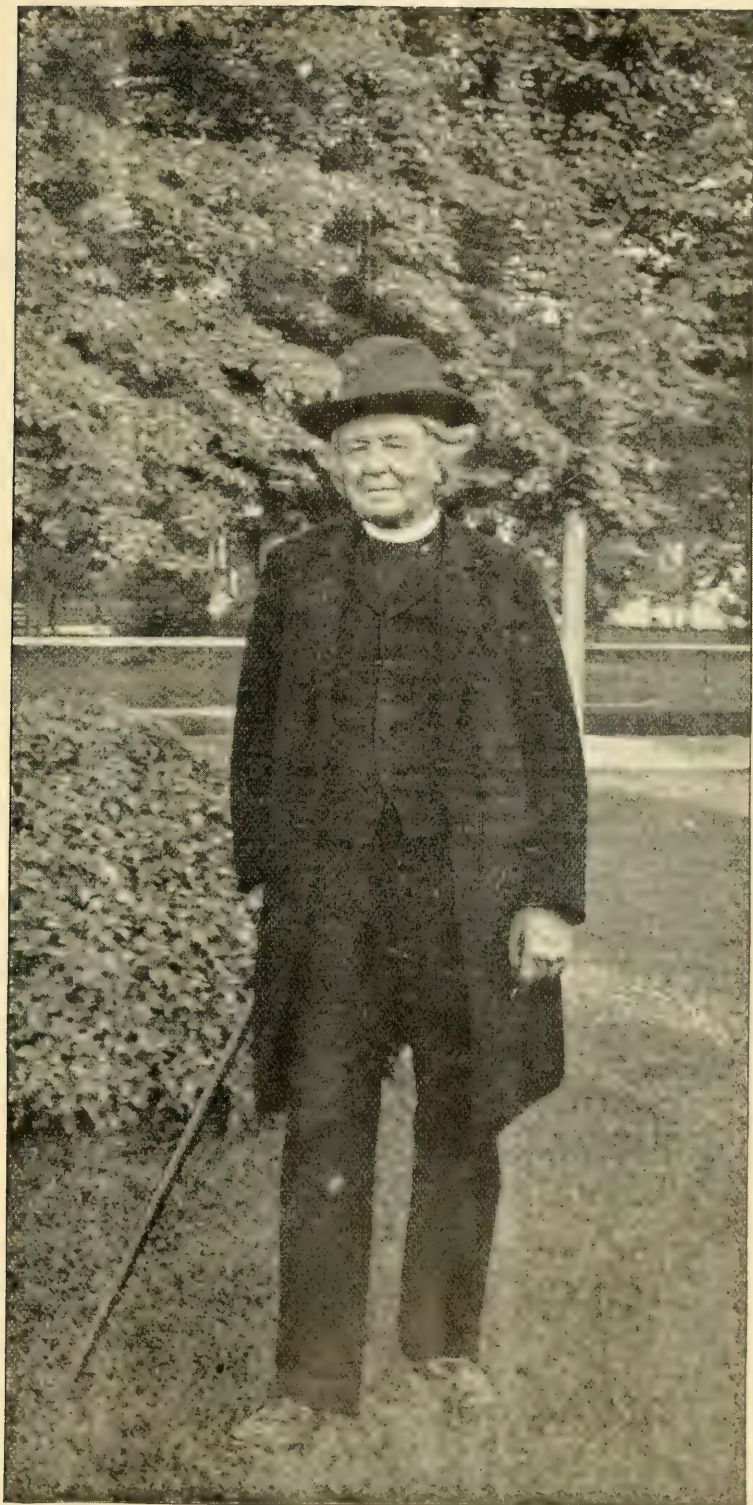
31 Belsize Park Gardens, London, England.

[Mr. Cowan refers to a letter of Mr. Langstroth, regarding malted milk and its relation to bee-food. A similar one was sent to us; but at the time he was not ready to have it made public; but since his death we give it here just as he wrote it.—Ed.]

I have something to communicate which may interest you. A few nights ago, as I lay upon my bed, a thought suddenly darted into my mind. I have not time to tell you what suggested it, and perhaps I have made a discovery which will be highly important to bee-keepers. Read what Thos. W. Cowan says about the chyle food the bees feed to the larvæ. Then read what Horlick says about malted milk. Now let the powdered article be diluted, not with simple hot water, but with hot honey-water, and don't you see that you have almost the exact equivalent of the chyle food given to the larvæ? This is not an expensive food, and, pollen or no pollen, weather good or bad, inside the hive we can feed what may be the best stimulant to brood-rearing. Given a food of such value, not too expensive, and so easily prepared, and what consequences may not flow from it? I need not attempt to describe—they follow like the corollaries from the demonstrated problem.

I write to you, among other dear friends, to put this thing at once to the test—feed as you know how to do—note its effect upon brood-rearing as you may easily do in a short time. The season is right; the time before the Toronto convention sufficient. Most experiments require much time, patience, etc., before we can arrive at any certain conditions; but if I had bees, and dared to do any thing with them, without too much risk, I should be able to say in less than two weeks, "Eureka!" or "fooled again." I have set so many at work that we must arrive at certainties.

If it is a success I shall give it to the bee-keeping world, at the Toronto gathering. I would dicker



L. L. LANGSTROTH IN HIS 82^D YEAR.

with nobody, and have no doubt that I should be amply rewarded.

I am concerned to see that your health is not firm yet. I have found great help from the malted milk. Might it not benefit you?

I say, mix with honey—not sugar—for honey, as you know, is a partially predigested food, according to Prof. Cook and others. L. L. LANGSTROTH.

Dayton, O., Aug. 19.

[At the time this was received my health was such that I gave very little attention to business, and among other things this was passed by. If others have tried the feeding as suggested by our departed benefactor, we should be glad to hear from them.—ED.]

LOOKING BACKWARD.

A REVIEW OF APICULTURE IN OLD TIMES AND IN OLD COUNTRIES.

By Charles Dadant.

The men who, instead of destroying their bees, conceived the idea of domesticating them in order to get the crop of honey without so much work, made use of hollow tree trunks; after that they made hives of baked clay, of wickerwork, of straw, of cut stone, and of boards, etc. Unfortunately it was difficult to get the honey without destroying the bees. Besides that, the wax being greatly sought after, especially for use in churches, where no other kind of illuminating material was employed, its value prompted bee-men to suffocate their bees in order to rob them of their stores. I should add here, that, in the greater part of the countries dominated by Catholicism, this massacre of colonies was inevitable, for their laws forced the inhabitants of villages to furnish the churches so many hundredweights of wax every year. It was thus that the destruction of the richest apiaries became a lucrative business, as it is to-day in France, in Gatinals, near Paris, where there are professionals who make a business of laying out apiaries, and who are supplied regularly by persons who raise bees, not for their honey, but for the purpose of selling them when the hives are full.

In proportion to the spread of bee culture, their habitations were improved. Particularly was this the case in Greece, where a knowledge of their habits and the methods of culture was developed.

Della Rocca, in 1790, relates that the apiculturists in the Cycladean Archipelago, in Greece, used long hives of baked clay, which they placed horizontally through the thickness of walls which were made expressly for that purpose. The bottom of each hive was removable, and one could get the honey almost without disturbing the bees, and without being subject to the stings of the bees as they issued from the front end of the cylindrical hive. He showed also a board hive, the frames of which were upheld by means of small top-bars or slats, under

which, and attached to them, the bees built their comb.

Hives with movable frames were still in use in Greece in Della Rocca's time, made after another fashion; for Liger, in his "Rustic House," printed in 1742, shows the design of a hive, with entrance, made of wickerwork, and furnished with top-bars from which were suspended the frames. The progress of Greece in apiculture need not surprise us when we remember that, 300 years before the Christian era, Aristotle had already published some descriptions of the habits of bees.

If we refer to the ancient writings on apiculture we find that movable frames were not used in other countries until much later. Those who suffocated their bees, or those who sold bees to those who did so, did not have, and do not now have, hives with more than one compartment. Others, finding this practice cruel, or desiring to preserve their colonies, placed surplus-cases on top of the hive-bodies; afterward, hives with several divisions, or "stories," "horizontally divisible." Afterward some were constructed with two vertical divisions; then with three. Huber, toward the end of the last century, in order to study the habits of bees, made what is known as the "leaf" hive, which one might open as he would the leaves of a book as it stands on end.

Finally in Germany, Dzierzon published, in 1846, a description of his hive with movable frames, which opened from behind, and the frames of which were supported simply by little bars.

In the same year 1846, Debeauvoys, in France, published a book in which he described his hive with movable frames which were removed at the side. I have already related in the journals how I became acquainted with Debeauvoys and his hive. It was in 1849 that I visited the Paris exposition, when I saw, at the end of the hall through which I was rambling, a magnificent comb of honey on top of a board hive. Without paying any attention to the rebuffs which I met in my efforts to get near the hive, I pushed through the crowd. The exhibitor, Mr. Debeauvoys, was not there. One of his neighbors was there with an artificial brooder, in which chickens were hatched every day. These little chicks were perched on top of the brooder, and looked quite forlorn in their seeming distress at finding themselves in the midst of such a scene. Their owner said to me that the bee-keeper would be back soon. Sure enough, Debeauvoys, a rather heavy man, with pleasing figure and lively deportment, arrived in a few moments and explained to me his hive and its manner of manipulation. It was a frame hive, opening at the sides, and it lacked nothing to make it practicable except a space between the ends of the frames and the hive; for the frames, having no top-bar longer than

their width, were supported by lengthening the side-pieces, thus forming feet, touching at the ends the boards forming the front and rear of the hive. To get them out it was necessary to separate them from the walls of the hive by spreading the latter a little by means of a thin chisel-shaped lever. This plan succeeded very well so long as the frames were not propolized to the inside of the hive; but after that, their removal was difficult, if not impossible, without breaking the frames; so, although the Debeauvoys hive may have met with some favor in France for several years, and although his book has passed through six editions, the hive was soon abandoned as impracticable. This hapless invention had one unfortunate effect; namely, that of setting French bee-keepers against the use of movable-frame hives entirely, thus retarding progress.

Debeauvoys sold to me the second edition of his book for 45 sous. On returning home I tried to make some of his hives, and transfer some colonies into them. Following the advice of Mr. Debeauvoys I did the transferring by night. It is to be remarked that I received no injury from stings. In the mean time I succeeded nicely. For one or two years I was proud of my hives, and showed them to all who desired to examine their interior. Unfortunately, two or three years after that, we had a very mild winter, not to say a warm one. The fields of rye headed out in January. My hives were filled with brood in March; then a succession of very cold days in April caused the destruction of the twigs of the trees, which were as fully grown as they usually are in June. Then there were seen, instead of green leaves, young shoots blackened by the frost, hanging from the branches which gave them birth. Being too busy at that time to give my bees the attention they actually needed in order to regain the lost ground, I lost them all; and from that time on I had nothing more to do with bees until my arrival in the United States, in 1863.

Having procured the works of Langstroth, Quinby, and King, I immediately perceived the immense superiority of the movable bottom, and the space between the ends of the frames and the inside of the Langstroth hive. There arose, at this time, a discussion concerning the Langstroth patent, as to the priority of the invention of the frame hive with a space between the frame and the sides. King pretended that Berlepsch, a German bee-keeper, had anticipated Langstroth. But it was proved that Mr. L. had applied for a patent about six months before Berlepsch had invented his hive. Besides, the Berlepsch hive, although having been generally adopted in Germany and Italy, could not for a moment stand any comparison with that of Langstroth. Its bottom-board is fixed; it opens behind, so that, if one wishes to see the front frame, he finds it necessary to take them all

out. The frames of the Berlepsch hive, being taller than they are broad, its surplus frames are smaller; and, besides, they are very limited in number, as the bottom of the hive is not movable.

In spite of the ill will which certain owners of the German hives showed, a comparison between the two hives, the Langstroth and Berlepsch, being entirely to the advantage of the former, it has gained a footing in Europe. I am proud to have been the first to describe and recommend it in France, where its distinguishing features—a movable bottom, and frames with spaces between them and the sides of the hive—have been adopted by all advanced bee-men.

The name of Langstroth is known and revered, not alone in North America, but in France, Switzerland, Belgium, Italy, and even in Russia, where the French edition of "Langstroth Revised" has been translated into Russian, in which language it has reached its second edition. Many apiculturists having described the qualities of our lamented friend, it suffices me to say that my son and I are happy to have been deemed capable by him to put his book, which was so far in advance of the times at the date of its first publication, abreast with all that has been achieved since; and above all to have succeeded in spreading its renown in all countries where the English language is known, and where he is considered, as well as in the United States, as a superior man, distinguished for his intelligence, his knowledge, his disinterested and unceasing work directed toward apicultural progress, to which he had devoted his life.

Hamilton, Ill.

HOW LANGSTROTH WAS REGARDED IN GERMANY.

By C. J. H. Gravenhorst, Editor of "*Deutsche Illustrirte Bienenzeitung*."

It was with sincere regret that I learned of the death of Lorenzo Lorain Langstroth. Every bee-keeper in the Old and New World, who knows what this grand and noble American apiarian has done for advancing modern bee-keeping, will feel as I do, and not the least my brother bee-keepers in Germany.

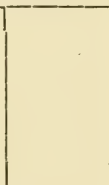
Many years ago, when the late Samuel Wagner founded the *American Bee Journal*, I became a reader of and contributor to it, and in that way I learned what Langstroth had done and was doing to encourage bee-keeping, especially when I received the first edition of his classic and renowned work, "The Hive and Honey-bee." I remember as if it were but yesterday when I received the book, and I would not lay it down till I had read the last word in it. How many times I have since read those wonderfully written chapters, the 11th, on the loss of the queen, and the 13th, on "robbing,

and how prevented," and others. I thought I could do nothing better than to acquaint my brother bee-keepers in Germany with Langstroth and with his system of bee-keeping. So far as I knew, no one in Germany had read any thing of value about American bee-keeping, up to that time, in our bee-papers. Only Pastor Kleine, at Luethorst, had received a few copies of the *American Bee Journal*, from Samuel Wagner. While visiting Kleine I saw the *American Bee Journal* and Langstroth's book, "The Hive and Honey-bee." I translated some articles from those journals, and now and then some chapters from the book mentioned, for German bee-papers. Later (thirteen years ago) I founded the *Deutsche illustrierte Bienenzeitung*, and thought I must do more, especially as American bee-keeping was making such extraordinary progress. In the first annual volume of my journal, I gave, in one of the first issues, a sketch of the life of Langstroth, with his portrait. I did the same in the first volume of my "Imker Album," that contained sketches of the most renowned bee-keepers of the world. In the third and fourth edition of my manual of bee-keeping, "Der practische Imker," one will find a portrait of Langstroth, as well as a representation and description of the Langstroth hive. Since that time, as many German bee-keepers have helped me in that line, I can safely say that American bee-keeping and its great promotor, L. L. Langstroth, are well known in Germany.

And now let me say right here, Langstroth was one of those bee-keepers to whom is due a place in the front ranks of bee-keepers the world over. He is, of course, the Dzierzon and Huber of America. His invention of a most practical bee-hive has, especially in America, raised bee-keeping to a very high degree. If I am not wrong, Mr. Langstroth gave his hive to the public in 1852, seven years later than Dr. Dzierzon did his movable-comb hive; but there is no doubt that Mr. Langstroth made his invention without knowing any thing concerning what Mr. Dzierzon was doing; otherwise such a Christian man as Mr. Langstroth has always shown himself to be, both in his public and private life, and in his masterpiece, "The Hive and the Honey-bee," would have given honor to whom honor was due. The difference between his hive and that of Dzierzon proved that plainly.

The Dzierzon hive has fixed top and bottom boards, and two doors (sometimes one) on one or two sides. This hive is longer or higher than wide, according to the standard frames, which are nearly as large as the standard Langstroth frames. If side-storing of the honey is preferred, the Dzierzon hive contains 16 frames side by side in a so-called "lagerstock." On the other hand, the hive has two or more stories in a "staenderstock." All frames in this German

hive hang with the shorter sides above and below, in this way:



Most of the German bee-keepers are of the opinion that bees winter better, especially outdoors, by the use of frames in which the bees may have their winter stores above the cluster.

It is a matter of fact, that most of the bee-keepers in Germany, Austria, Hungary, and German Switzerland, use Dzierzon hives; but in all other lands the Langstroth hive is more in vogue. I may say without exaggeration, that most of the bee-keepers of the world use the Langstroth hive, and therefore are deeply indebted to the great American. But we, though not using his hive, are, notwithstanding, not less indebted to him, as he was the man whose invention developed bee-keeping in a great measure in such a way that we have learned from him and his disciples in many cases.

Wherever one hears the best names of bee-keepers spoken by the bee-keeping world he will never miss the name of Rev. L. L. Langstroth.

Wilsnack, Germany, Oct. 28.

LANGSTROTH'S INVENTION IN FRANCE AND SWITZERLAND.

HIS BOOK THE "MASTERPIECE OF APICULTURAL LITERATURE."

By Edward Bertrand, Editor of *Revue Internationale*.

Through Mr. Dadant I had already received information of the death of Mr. Langstroth when your letter of Oct. 15 arrived. It was not without deep regret that I learned of the departure of that distinguished man to whom we owe so much; and I can assure you that, on this side of the Atlantic, the loss which the friends of the bee have just sustained will be no less keenly felt than in America; for Langstroth is considered everywhere, in Europe as well as with you, as one of the fathers of modern apiculture. Francis Huber, my fellow-countryman, prepared the way by discovering the secrets of the habits of bees; and, fifty years later, Langstroth, in the United States, and Dzierzon and Berlepsch in Germany, crowned those efforts by giving to apiculturists systems of hives which have revolutionized the keeping of bees. But the manner in which the American inventor solved the problem of movable frames and the inspection of colonies, caused it to surpass the German method; and it is his hives and methods which have been adopted in the greatest number of countries, and which give the most brilliant results. I have, for my part, experimented with both systems; and, without contesting certain merits in the Berlepsch model, I give the preference to the American hive, with loose bottom, and stores above.

But it is not alone for his useful invention that the memory of our great Langstroth deserves to be handed down to posterity. He has written an admirable book in which the elevation of the thoughts equals the extent of the writer's erudition as well as the richness of his observations, and which will remain the masterpiece of apicultural literature. Thanks to Mr. Dadant's translation, of which I am preparing a second edition, this work is now known to French-speaking apiculturists; and it has been produced in Russian through the labors of Mr. Kandratieff.

Our dear master's life had a glorious end, and one well worthy of it, as he died preaching the word of God. Let us preserve his memory in our hearts.

ED. BERTRAND.

Nyon, Switz., Oct. 27, 1895.

SOME RECOLLECTIONS OF LANGSTROTH.

By W. F. Clarke, formerly Editor of the *American Bee Journal*.

My first knowledge of Mr. Langstroth by name was in the early winter of 1863. I had engaged to edit an agricultural journal which was to be started in Toronto, Jan. 1, 1864, to be called the *Canada Farmer*; and on surveying the field of my prospective duties it occurred to me that there was one branch of agriculture about which I knew nothing whatever—namely, bee-keeping. I at once resolved to read up on the subject; and on making inquiries for the best works to peruse I met with “Langstroth on the Honey-bee.” I lost no time in plunging into its pages, which I found replete with interest. The book read like a fairy-tale. I felt as if I had been introduced into a new world. Up to this time my knowledge of the bee did not stand beyond Dr. Watts’ juvenile and moral song, which commences, “How doth the little busy bee!” I now felt that I must explore for myself the new world which had been opened up to me. Toward spring I corresponded with Mr. J. H. Thomas, of Brooklyn, Ontario, and bought of him a colony of Italian bees bred from stock he had obtained from Mr. Langstroth. This was my initiation into what Mr. W. Z. Hutchinson, as I think rightly, calls “the pleasant occupation of tending bees,” the fascination of which is easier felt than told. If it were only for the gratification I have derived from this pursuit as a scientific pastime for more than thirty very busy years, I should feel that I owed Mr. Langstroth a large debt of gratitude.

I first met our lamented friend face to face at the bee-keepers’ convention held in Cincinnati during the month of February, 1871, of which he was elected president by acclamation. His health was poor then, and he accepted office as a compliment, on the condition that none of the active duties of the position were to be performed by him, as he did not feel that he had

physical strength adequate to the task. The convention unanimously consented to this condition. I had a great deal of talk with him about the suit for infringement of his patent rights, in which he was then engaged. He had a deep sense of wrong, and felt most keenly the attempts which were being made to deprive him of what he believed to be his just dues. It cut him to the quick, that the very man who was doing the most to deprive him of the benefits of his movable-frame-hive invention should have placed him before the meeting as an object of charity by starting a \$5000 subscription fund on his behalf. He said he did not want charity; all he asked was justice.

My intercourse with Mr. Langstroth at this time led me to form an exalted estimate of him as a man of high honor, scrupulous integrity, and unbending rectitude. The spirit showed by him toward those who were injuring him was admirable. There was no harshness, no display of unkind feeling, the predominant thought being to have his cause triumph because it was right. There was a lofty dignity and moral majesty about him which impressed me very deeply. I never met him again until in September last at the Toronto convention. He recalled the events that transpired at the Cincinnati convention, nearly a quarter of a century before, and was most profuse in his expressions of gratitude to myself and Mr. A. I. Root for the efforts made by us to have him righted on that occasion. It was a pathetic parting we had at the close of the convention, like that of the Ephesian elders with Paul. They sorrowed most of all that they should see his face no more; and I had the same feeling as I bade him adieu in Toronto, though I did not think the end would come so soon; nor did he. With improved health he was looking forward with almost youthful buoyancy of hope to doing some further work on which his heart was set. But it was not to be. He returned home to die, amid scenes the most hallowed and dear to him, and while engaged in the work he most sacredly loved.

“The weary wheels of life stood still at last.” As a Canadian I am proud and glad that the last public tribute of respect and honor was paid to him, not only on our soil, but amid the classic surroundings of our educational department, where so many busts of departed greatness in literary and philanthropic walks of life are gathered; and I shall take pleasure in moving, at the next meeting of the Ontario Beekeepers’ Association, that permission be sought from the government to add a bust of Langstroth to the collection. I feel sure that permission will be readily granted.

Though I met Mr. Langstroth on only the two occasions to which I have referred, I had correspondence with him at various times as circumstances arose which prompted it. When,

at the request of the North American Bee-keepers' Association, I took charge of the *American Bee Journal*, and removed it from Washington to Chicago, his daughter, Mrs. Cowan, wrote me, at his request, a letter of approval and encouragement, his head trouble being then upon him, so that he could not write himself. He also promised help in carrying on the journal should his health permit. Shortly afterward the sickness and death of Mrs. Langstroth took place, which were a sore trial to him. It was a merciful mitigation of his affliction that his health was so far restored to him that, during the ten day's illness of his beloved partner, he was able to be with her every night but one. The letter he wrote me in announcement of this sad event was a gem in its way. Some passages in it were so beautiful and touching that, though not meant for publication, I took the liberty of inserting them in the *American Bee Journal* for March, 1873. I think it would be an interesting feature in its symposium if GLEANINGS were to reproduce that letter, as it gives a lovely picture of our departed friend's bearing under one of the sorest afflictions that can befall mortals in the present life.

Mr. Langstroth belonged to a class of bee-keepers who are numerous in Great Britain, but comparatively scarce in this country, who engage in the pursuit, not so much for the money there is in it, as for the interest they feel in observing the nature and habits of these wonderful insects, and trying to uplift and ennoble the occupation as worthy a place of honor among intelligent and educated people. It is common in some quarters to despise and disparage this class of bee-keepers; but for what reason I can not divine, so that it is almost necessary to defend the memory of this great and good man from the undeserved obloquy of not being a specialist in this line. He was one of those who do not believe money-making to be the all-important business of human beings in this world. Though he did not enrich himself by keeping bees, he performed services for others, the value of which are untellable. It is a poor return for these services which have done so much to ennoble bee-keeping, both as a science and an art, to belittle the performers of them because they do not count their colonies by the hundred nor their gains by the dollar-and-cent standard. Practical bee-keepers should hail those of the Langstroth class as allies and helpers, and be glad that any and all, according to their several ability, should aid the pursuit.

As a writer, Mr. Langstroth wielded a powerful and graceful pen. He was a master in controversy, and some of his articles of this character, that are on record in the earlier volumes of the *American Bee Journal*, are models of their kind. He did not fear to call a spade a spade. He dealt in no hollow compliments;

and, while respectful and courteous toward all, he spoke the unvarnished truth as he believed it, without fear or favor. Nothing low or vulgar ever marred his writings. There was a charm about his style that could not fail to interest all who read them. A memorial volume, embracing some of his best articles, along with biographical sketches from those who knew him best, ought to find ready and large sale among bee-keepers. I am glad to know that abler hands than mine are to set forth the merits of his invention, and what it has accomplished in the apicultural world; also its relative value as compared with the inventions of others who came before and after him.

I have tried to fulfill the task assigned me, and give "some recollections of Langstroth," and only regret that, owing to my few opportunities of personal intercourse with him, they are so meager. It would be easy to enlarge on the many estimable qualities of our departed friend; but I fear to encroach further on valuable space, and will only add in the words of another: "If I have done well, and as is fitting the subject, it is that which I desired; but if slenderly and meanly, it is that which I could attain unto."

Guelph, Ont., Nov. 1.

—♦♦♦— "LANGSTROTH, THE NESTOR OF AMERICAN APICULTURE."

WHOSE NAME IS KNOWN AND WHOSE WORK IS
APPRECIATED ALL OVER THE WORLD."

By Thomas G. Newman, former Editor of the
American Bee Journal.

This is the subject assigned to me for comment. Other themes presenting the many noble characteristics of the late brother will no doubt be ably introduced by those having them in charge, and so I shall enter at once upon my topic.

Father Langstroth's invention of the movable frame, in 1852, was so perfect, when announced, that time and experiments have not improved it. While in different countries and climates its dimensions have been modified somewhat, yet the movable frame in use to-day, the world over, is substantially the same as Father Langstroth introduced to the world after he had privately experimented and severely tested it, in 1852.

That invention completely revolutionized the pursuit of bee-keeping in all the civilized countries of the earth, and gave it such an impetus that it has now become one of the leading agricultural industries of the world. Its inventor's name will endure as long as bees are cultured, and will be remembered and revered by generations yet unborn.

His classic book, "The Hive and Honey-bee," stands at the head of bee-literature, and has been translated, in whole or in part, into all the principal languages of the world; and on the

natural history and habits of bees is a standard authority wherever bee-keeping is an industry of importance.

Sixteen years ago, when I attended the bee and honey exhibitions in Europe it was demonstrated to my observation that movable frames were universally used; and whenever the inventor's name was mentioned it was cheered to the echo. In England, Scotland, Switzerland, Germany, Austria, and Italy, I found enthusiastic admirers of Father Langstroth, who truly loved him for his apicultural inventions and his pure and benevolent character.

Unfortunately Father Langstroth was not a millionaire, nor did he possess enough in his old age to secure even the necessities of life. He had been too liberal and unselfish in his prime to even think of age or want.

In each of the countries before named, it fell to my lot to state these facts when in the assemblies of representative apiarists. To illustrate the esteem in which he was held, let me mention a few instances.

At a banquet in London, given in honor of the American representative to the bee-conventions of Europe, a toast was proposed to the Rev. L. L. Langstroth for his apicultural inventions and genius. Being called upon to respond to the toast, I referred to the misfortune of his poverty, and immediately, in true, large-hearted English style, the whole assembly rose to its feet, cheered his name, and a good contribution was then and there made and sent to Mr. L. to cheer his heart and clothe and feed him during the approaching winter. There were present, not only representative English and Scotch apiarists, but many from Continental Europe, and among these there were four or five editors of bee-periodicals. All were of one mind, doing honor to our loved American bee-master, who has just passed through the gates of Paradise.

At the other bee-conventions on the continent, similar scenes were enacted, particularly in Switzerland and Bohemia. At the latter, the Rev. Dr. Dzierzon (the Nestor of German apiculture) forcibly stated his admiration of Mr. Langstroth, and sent a loving message to him by the writer. Among his other enthusiastic admirers I may mention the Baroness of Berlepsch, Augustus Schmidt, editor of the *Bienenzeitung*, Prof. Sartori, Herr Vogel, Hilbert, and Carl Gatter.

Prof. Butlerow, of Russia, Councillor of the Government, was the bearer from St. Petersburg to Prague of the imperial distinction of the Order of Santa Anna, by order of the late Czar, to confer the same upon the Rev. Dr. Dzierzon for his apicultural research and inventions, and that Russian dignity was pleased to couple the name of Langstroth, of America, with Dzierzon, of Germany, and others, as the greatest men living in the api-

cultural world of the day. He then conferred the decoration on Dr. Dzierzon, with the usual ceremonies.

But space forbids further narration of the many interesting incidents within my knowledge, in proof of the topic assigned to me. I will merely add that the educated and most prominent apiarists of the world, with one accord, attribute to Father Langstroth this well-earned honor: That in his life, character, and labors, he was one of Nature's noblemen—a modest, unassuming, honest man. He has fairly and fully earned the grand distinction of being the "Prince of Apiarists—the Huber of America!"

We should all realize that it is the greatest of all earthly privileges, as well as among the highest of all human duties, to commemorate the life, example, and services of one so devoted to the advancement of apiculture as a science and a pursuit.

He was as confiding as a child, and therefore an easy prey for the unprincipled. At Toronto, the last time he appeared at a bee-keeper's convention, it was a grand treat to listen to his loving words, so entertainingly uttered. Even food was forgotten, though placed before him, when talking with friends and companions.

Some of us donated enough to take him to Toronto, and there a liberal donation was made him. His last letter to me began with these words: "Dear Friend: I can almost see you, and hear your generous remarks concerning me before the Toronto convention," showing how he "lived over again" the pleasant scenes of life, while waiting for the 'change' which should call him to the 'home over there.'" Patiently, lovingly, confidingly, he might say:

Only waiting till the shadows
Are a little longer grown;
Only waiting till the glimmer
Of the day's last beam is down;
Then, from out the gathered darkness,
Bright and deathless stars shall rise,
By whose light my soul shall gladly
Tread its pathway to the skies."

Chicago, Ill., Nov. 18.

FROM MR. LANGSTROTH'S PASTOR.

Rev. W. F. McCauley.

I was intimately acquainted with Mr. Langstroth for the last eight years of his life, he being a member of my congregation in Dayton for over seven of those years. It will be impossible, in the limits allowed in this symposium, to do more than to give some general statements concerning this remarkable man.

He came to Dayton in August, 1887. I last saw him in September, 1895, on the occasion of his visit to Toledo, made while *en route* to the Toronto convention. Twice in the period indicated he suffered from his peculiar physical ail-

ment and its resulting "melancholia. The first of these periods lasted about three years; the second terminated not many months before his death. He derived some temporary help from a physician in the early part of his residence in Dayton, and said joyfully, "I think I am fighting a winning battle." It did not so prove in the end; but we all rejoiced that, after all, the close of his life was free from shadow and gloom. The trouble referred to did not seem to affect his intellect, but was of the nature of depression of spirit, by which he was unfitted for his accustomed tasks. When in the enjoyment of entire health no one could be more active or companionable. Did space permit, instance after instance might be given to show the heartiness of his disposition. Geniality and earnestness were companion traits or ingredients of his nature, and it was delightful to have an intimate association with him. Though he grew to be nearly five years past fourscore, yet there was still much of the dew of youth upon him: he was like a tree bearing simultaneously blossoms and ripened fruit.

He had a breadth of culture and of intellect that marked him as a man among men. He deserves the respect of all, not alone for his achievements along the line of bee culture, but for his general ability and high character. This is the estimate of a friend who knew him in his various moods, and never found him other than true and lovable.

He was frequently reminiscent, and would quote fine passages; or relate anecdotes, of such character that the point illustrated would remain a long time in the mind. He was never unreasonable, but by nature was intense, and that quality endeared him to the writer. He uttered his convictions in unmistakable phrase, and gave others the same privilege. This enabled one to "get on" with him in famous fashion, for no time was wasted in false motions. Kindliness and straightforwardness, discretion and courage, and these dominated by heartfelt devotion to God and his truth, threw about him an atmosphere of light and warmth.

In all the foregoing there is no exaggeration; the effort has been to seek phrases that would convey a just conception of a character honored by one generation, and whose virtues should be preserved for the contemplation of another.

In the Y. M. C. A., in the pulpit occasionally, and in private life constantly, he sought to employ his strength to accomplish good. He was unselfish, and planned busily for the good of others. His life was broken into segments by physical affliction, but he did his best with his opportunities; and through the scattered clouds we can trace the shining arch to its base at the triumphant close of his days. He could say of his heavenly Father:

Better to me than all my hopes,
Better than all my fears,

He builds a bridge of my broken works,
And a rainbow of my tears!

His death came suddenly, like the setting of the sun, which lingers in the horizon, and then quickly drops from sight. His setting, too, was in full-orbed power. He was assisting the pastor of the Wayne Avenue Presbyterian church in the communion service, with three generations of his descendants in the congregation before him, when the moment came that terminated his earthly career—but his "works do follow him." It was the church that his son-in-law, Mr. H. C. Cowan, had helped to found as a Sunday-school, and of which the writer had been pastor. That church had been the subject of Mr. Langstroth's deep interest, and it was hallowed anew by his death. It would be fitting if the church could somehow be made a Langstroth memorial. It must not be forgotten that he was a minister of the gospel, and formerly a pastor. It seems most remarkable that the calling he was compelled to forego in an active sense for so much of his life should receive the benediction of his parting breath. It was thus that he died "in the harness," and left after him an example of devotion in service for all to emulate. His death became an illustration of that providential care which adds symmetry to every devoted life, and satisfieth the longing soul.

Toledo, O.

REV. L. L. LANGSTROTH.

THE MOST WIDELY KNOWN, LOVED, AND APPRECIATED BEE-KEEPER IN THE WORLD;
AN ALL-AROUND GENIUS; THE INVENTOR OF THE FIRST PRACTICAL MOVABLE-FRAME HIVE.

By Prof. A. J. Cook, Author of the "Manual of the Apiary."

It was with keen regret and sadness that I heard, on October 10th, that our old friend and benefactor—Mr. Langstroth was the benefactor of every bee-keeper—had passed to his reward the Sunday before. I had recently had two letters from him, which spoke of health, vigor, and strength. We all know of his long journey to attend the Toronto meeting; and a very dear mutual friend wrote me but a few days before that he had entertained Mr. Langstroth at his house, had taken him for a long ride, and that he seemed very bright and vigorous, and talked of his friends with so buoyant a spirit, and of affairs with such keen mental zest, that, though nearly at the eighty-fifth milestone, yet he seemed likely to see yet many days of usefulness and activity before he passed to the great beyond. Thus it was that the news came to me as a shock; and with the thousands of others all over our great country, I bowed my head and heart with grief and sorrow that I should see the kindly face and hear the sympathetic voice no more.

It is certainly true that the world has never had a bee-keeper who was more widely and justly known, loved, and appreciated than our dear father Langstroth. And so the world never lost an apiarist who will be more widely and sincerely mourned.

I had visited our beloved and venerable friend repeatedly at his own home, and had entertained him at my home on several different occasions. I grew to love him as a dear personal friend, to admire him as a man of very rare native ability and acquirements, to venerate him as a man of the loftiest Christian character. Few persons ever suffered more cruelly at the hands of unscrupulous, selfish, designing men, and yet his great loving heart seemed to harbor no thought of revenge or unkindness. He exemplified, in a manner rarely witnessed even among good men, Christ's words, "Love your enemies, and pray for them that despitefully use you and persecute you." Indeed, he was a rare example of one whose life was wholly permeated and glorified with the spirit of the Master.

There are many men who excel in some one line of work. They may have a genius at invention; they may be wonderful at painting word-pictures, and thus gifted in the art of exposition; they may possess great intellects, and thus become great scholars; they may have that beautiful equipoise of character that insures just judgments, and makes them broadly and grandly influential. But how rare to find these qualities united in one and the same person! Mr. Langstroth was all this. His keenness of vision as an inventor was remarkable; his power as an investigator and writer was graphically illustrated in his admirable work on the honey-bee; his ability and scholarship were known, recognized, and appreciated by all who knew him; while his beautiful character, that thought no evil, could hardly understand or believe that others were selfish, calculating, and willing to take advantage of his unsuspecting nature. His was a great mind, his a true loving heart, he that noblest work of God, a true, sweet, Christian character.

To-day we know positively that Mr. Langstroth was the inventor of the first practical movable-frame bee-hive. The German top-bar hive, with combs fastened to the side, was a previous invention, as was the close-fitting frame of Major Munn; but neither of these was known to him previous to his own invention, and each was as inferior to his as is the sickle to the self-binder. Mr. Langstroth had the vision to see a great need, and the genius to supply it; and in so doing he shared the honor and glory of very few men—that of revolutionizing a great industry, and changing entirely its methods. He did more than this; he did his work so well, that, though nearly fifty years have rolled by, yet no one has been

able in all that time to improve upon his invention in any essential particular. What a compliment to him, that his hive, essentially as it was given to the world nearly half a century ago, is to-day the hive of nearly all our brightest and most successful bee-keepers! No one can gainsay the fact, no one can deny the glory, of such an accomplishment. I can not find a parallel case in all the history of inventions. The sewing-machine, the reaper, the steam-boat, the railroad locomotive of to-day, could hardly claim relationship with the first ones given to the public; indeed, we are told that no one can afford to run a steamship of a score of years ago.

Mr. Langstroth was also an author of the highest type. His "Honey-bee" will ever remain a classic in bee literature. The incisive style, the pure vigorous English, as well as the fascinating subject-matter, alike charm the interest and awaken the deepest admiration. Like another classic, Darwin's "Voyage Around the World," he opens up to us the secrets of investigation, and we are charmed as we discover how his mind worked its way upward in the realms of invention and scientific discovery, and it is equally true that his honesty was as thorough as was his genius at invention or his ability to describe. He was no plagiarist, either as a writer or inventor. Even the thought of claiming the work or thought of others was revolting to him. Had the same been true of others, Mr. Langstroth would have died a rich man. In all his writings he was overscrupulous and particular to give every possible credit to others.

As a student in college, Mr. Langstroth stood among the first. As a teacher in Yale College, his *alma mater*, after graduation he won the respect of all his colleagues. As a preacher he was eloquent, persuasive, convincing. It was my privilege to hear him preach on several occasions, and he always held the closest attention of all his hearers. Except for the mental affliction that weighed him down for so much of his life, he would certainly have gained wide fame as a pulpit orator. He was an intimate friend of the great Henry Ward Beecher, whom he resembled not a little in personal appearance and style of oratory.

Socially Mr. Langstroth was very exceptional. Time always took flight when he became a companion. An hour or even more was all too short for the meal-time when he sat at the board; and the hours for sleep were crowded at both ends of the night when he was an inmate of the home. His wide reading, his knowledge of history, his acquaintance with men, his thorough knowledge of the Bible, and his practical adoption of its teaching and spirit, all combined to make him a delightful and most valuable and entertaining companion.

His lifework specially endeared him to bee-

keepers. His invention and discoveries were a special gift to every progressive bee-keeper the word over. He personally contributed to the success and happiness of this entire class. No wonder that they loved him with genuine sincerity. No wonder that they mourn his loss with sincere sorrow. It is good that he could be present at the last meeting of the North American Association at Toronto. It will remain with us a pleasant memory that he died while administering the communion, and commending the love of the blessed Master, whose love came with such a rich effulgence in his own life, and through him spoke as a blessed benediction to all who knew him or came under his beneficent influence.

Claremont, Cal.

RECOLLECTIONS OF L. L. LANGSTROTH.

AN INTERESTING INCIDENT; LANGSTROTH AND HIS STATEMENTS CONCERNING THE HEDDON HIVE.

By Thaddeus Smith.

It was early in the sixties, or it may be a few years before, that I first heard of Langstroth's book on the honey-bee, and of his moveable-comb hive, and, being previously interested in bees, I procured the book and the hive as soon as possible. I was probably the first to introduce the Langstroth hive in Kentucky, sending to Cleveland, O., for them. I now have some of those hives on Pelee Island, Canada, that I took there with me. However, they are not in use.

Since then the name of Langstroth and hive have been familiar household words in my family; but I never had the pleasure of meeting him until at the late convention at Toronto. I there made his acquaintance, and, being afflicted with deafness, like him, he seemed drawn toward me, and one day at the hotel he invited me into the parlor to have a talk with him. When we had discussed our ailments and the best aids for hearing, etc., the talk turned to other subjects. He told me that he felt perfectly well—strong in body, and clear in mind. Talking about being able to hear some voices much easier than others that might be of a higher pitch, he told me of an incident of a deaf woman he was once in his ministry called upon to pray with. He said he had a very strong voice, and that he knelt down close by the side of the woman, and spoke slowly and distinctly; and when he was through, the woman declared that it was the first prayer she had heard in many years; that it was almost miraculous, and she thought her hearing was returning. But he told her no; it was only the way he spoke.

He spoke of bees and hives, and mentioned the injustice done him by some because he approved and recommended the Heddon hive as an improvement upon the original L. hive. He

said he was even accused of being in his dotage, or was bought by Heddon because Heddon paid his traveling expenses to visit him, and was indignant over the matter. After a pleasant half-hour's chat we parted, and he wrote to me, after he reached his home; and in a few days after receiving his letter I saw the announcement of his death.

Midway, Woodford Co., Ky., Dec. 2.

LANGSTROTH'S MESSAGE TO THE SUNDAY-SCHOOL CHILDREN.

By S. T. Pettit.

The bee-keepers of America lost a good man and a friend when dear old Father Langstroth died. His influence was firm on the side of the Holy Bible and Christianity. His noble tender heart overflowed with love for the human race.

When in his presence I always felt an inspiration that I must be a better man in future. At our last convention in Toronto it was my privilege to have quite a long talk with Father Langstroth on religious subjects; and when we got on the subject of Sunday-schools his face seemed to glow as we talked together. And when he found that it was my official duty to visit all the Sunday-schools in the township in which I live, he, with warm animation, said, "I have a message I want you to take to the boys and girls as you visit your schools: First of all, impress upon their tender hearts that the Bible is the *very* word of God—the infallible, immutable word of God; that it is the very voice of the Holy Spirit speaking to our hearts. Then you can show them the necessity of committing largely of that word to memory. Tell them that they can easily do this when young, and that what they learn when young will stay by them; but what is learned when old is soon forgotten and lost."

Then he recited some beautiful poetry, some of which is of his own composition, composed when he was young. He gave these with great ease, accuracy, and beauty. "But," said he, "what I learn when old just goes from me—is forgotten and lost."

Belmont, Ont.

LINES ON THE DEATH OF FATHER LANGSTROTH.

The "Grand Old Man" of apiculture is no more;

Gone is the look of suffering he often wore;

The weary aching head to trouble oft a prey,

Rests in the light and life of heaven's eternal day.

Grand was he in physique, but grander far in mind,

Grandest of all in love and service to mankind;

Free from low aims, unselfish, bent on doing good,
Till, past fourscore, a pillar in God's house he stood.

We never grieve when we behold a shock of corn
That, fully ripe, is to its garner borne;

We raise the song and shout of gleeful "harvest home,"

And fill with strains of music heaven's Empyrean dome.

Thus, like a shock of corn full ripe, our aged friend Attained, 'mid hallowed Sabbath scenes, his journey's end,

While those who watched his exit, with tear-moistened eye,

Soliloquized, "Let me like Father Langstroth die!"

If "Death ends all," we never more again shall see

That form erect with conscious moral majesty;

But if our Christian faith tells no delusive tale,

We in the glory-land shall bid our friend "All hail."

Will there be bees in heaven, and honey gathered there?

Is it a "happy hunting-ground," without a care?

We know not; but our friend will reap a rich reward Of joy and fellowship, "forever with the Lord."

Farewell, dear friend, and in a brighter world than this

May we enjoy with you a life of perfect bliss,

Where thrilling music through celestial mansions rings,

And pleasures evermore are gathered without sting!

WM. F. CLARKE.

Guelph, Ontario, Nov. 18.

[This memorial would be incomplete without at least a mere reference to the life and work of one who was cotemporary with Father Langstroth, and gave him material aid and encouragement in his early labors. I refer to the founder of the *American Bee Journal*, the lamented Samuel Wagner—that prince of bee-journal editors, scholar, and bee-keeper. The early volumes of the "Old Reliable" under the editorial management of this man are a veritable storehouse of valuable information. As one glances over them he begins to wonder if we are so very far in advance of them to-day in our knowledge and practice. The fact that apiculture took such a wonderful impetus in this country in the early sixties is due very largely to the unremitting and unselfish labors of these two men. The one gave us the invention which revolutionized modern bee-keeping, and the other spread the knowledge of that invention over the whole wide world. Wagner saw at a glance the value of the movable frame; and during the darkest hours, amidst the persecution against Mr. L.—a species of blackmail that has been characterized as a blot and a disgrace upon our early apicultural history—this man Wagner stood by him through it all.

In the old *American Bee Journal* for March 12, 1872, we find this beautifully written tribute to the memory of Wagner, by Father Langstroth himself.—ED.]

DEATH OF SAMUEL WAGNER.

READERS OF THE BEE JOURNAL:—Your dear old friend, the honored editor of the *American Bee Journal*, is dead. On Saturday, February 7th, he awoke early, partially dressed himself, and was talking pleasantly with his wife, when he was suddenly seized with shortness of breath, soon became unconscious, and in less than fifteen minutes breathed his last. The physicians pronounced his disease to be aneurism of the heart. He had complained for more than a year of pain and numbness, interfering greatly at times with the use of his pen.

A noble, unselfish, good man has fallen, in the full vigor of his intellect, with judgment unimpaired, and memory wonderfully tenacious. Nearly seven-

ty-four years old! How few of the readers of the *Journal* could have imagined that its vigorous editorials and wise management were the products of a man who had reached an age when most men are comparatively useless.

If he could have chosen for himself, it would have been to die thus with the harness on; to pass by the shortest transition from useful happy work to the better land.

Few know how much Mr. Samuel Wagner has done for the promotion of bee culture in America. Being able to read German fluently*—indeed, until he was nearly ten years old he spoke no English—he had taken all the numbers of the *Bienenzeitung* and other German bee-journals, from their origin. His library is unquestionably the choicest repository, in America, of German bee literature, and probably the fullest, in this department, of any private library in the world. Better acquainted with the history and literature of bee culture than any man in America, perhaps than any living man—seldom if ever forgetting a single fact once lodged in his extraordinary memory, he was so modest and reserved that only those who knew him well understood the wide range of his reading and investigation.

Unselfish to an unusual degree, he cared comparatively little for money or applause, but kept steadily in view the advancement of the true interests of bee culture, making his varied information contribute to the wider diffusion of all that pertained to the true theory and practice of his favorite pursuit. While specially familiar with every thing pertaining to this subject, he was well versed in the civil history of his country, and intimately with the ecclesiastical history of the German Reformed Church, in which he had served for many years as an honored elder. There were few subjects, indeed, on which he could not converse with ease; and by the extent, variety, and remarkable accuracy of his information, he was one of the most delightful companions to all who enjoyed the pleasure of his acquaintance.

It is very difficult to realize that all these stores of instructive and entertaining knowledge lie buried in his tomb; and nothing but a firm belief in the wisdom and goodness of that merciful Father, in whom he trusted, can reconcile us to his loss. He who hath brought "life and immortality to light in the gospel" knows best when and how to summon his children to their unclouded splendor.

L. L. LANGSTROTH.

[After the above the following appears, written by Mr. Wagner's son:]

Samuel Wagner was born at York, Pennsylvania, August 17th, 1798. His father was at that time pastor of the German Reformed Church in that borough. Having accepted a call from the German Reformed congregation at Frederick, Maryland, he removed there. Mr. Wagner there attended the parochial school attached to the church. In 1810 his father resigned, owing to ill health, and re-

* We forgot, in the February number of the *American Bee Journal*, to give the proper credit to Mr. Wagner for his translations from the *Bienenzeitung*, given in the article on the Berlepsch frames.

* It is with deep regret that we announce that no likeness exists of our venerable friend. He shrank so instinctively from every thing having the least appearance of personal display, that he could never be prevailed on to allow his portrait to be taken.

turned to York, where he shortly after died. Mr. Wagner was then sent to the York County Academy, where he received his education. After leaving the academy, he engaged for some years in mercantile pursuits. In 1824 he purchased the *York Recorder*. In 1829 he sold the *York Recorder* to Mr. C. Hamley, and removed to Lancaster, where, in 1830, he established the *Lancaster Examiner*. Receiving the offer of the cashiership of the York Bank, he sold the *Examiner* to Hammersley & Richards, and returned to York, holding the position of cashier till April, 1862. In 1863 he accepted the position of disbursing officer of the Senate. Resigning this position in 1868, he, for the few remaining years of his life, devoted all his energies to the editing and management of the *American Bee Journal*, which was to him a labor of love.

RAMBLE 145.

By Rambler.

If we could get them all together, there would be quite a congress of lady bee keepers in the United States. Some of these ladies are already known through the journals, but the greater share of them shun publicity, and are working quietly over their apiaries; and the results of their labors are known only in their immediate neighborhood.

One of these quiet, effective workers is Mrs. W. E. Clark, of Bloomington, Cal. Mr. and Mrs. Clark have been mentioned from time to time in Rambles; and what I have to say about them this time is in relation to the present season's yield of honey and its source.

I happened along with my camera at a very opportune moment, and the photo I present represents a condition that can be observed with varying phases upon the outskirts of all Southern California apiaries that are worked for extracted honey.

From the little extracting-house, and the tank outside, the honey is drawn into the 60-lb. tin cans; and as soon as cased it is ready for market.

Mrs. Clark manages the apiary from early spring until the honey is ready to case. Then Mr. Clark is called upon to exercise his lifting talent. At other times masculine humanity is not tolerated in the apiary.

From 80 colonies, spring count, which have been increased to about 120, Mrs. Clark extracted a carload, or nearly 12 tons, gross weight. It is needless to say that there is not much recreation indulged in during the honey-flow; but just as soon as the extracting season is over, Mrs. C. spends a few weeks at the seashore, and recuperates from the summer's labor.

So to Mrs. Clark in particular, and the lady bee-keepers in general, I will doff my hat and utter the following toast:

To chase the clouds of life's tempestuous hours;
To strew its short but weary way with flowers,
New hopes to raise, new feelings to impart,

And pour celestial balsam on the heart,
For this to man was lovely woman given—
The last, best work, the noblest gift of heaven.

The honey secured around this little range of hills is in quality amber and light amber. Water-white honey in California is produced exclusively from the sages; light amber is a mixture, for the greater part, of the sage honey with the darker or amber from other plants. Later on, when the sage bloom is passed, then nearly all of the honey is amber. By this admixture we get several grades of honey; but for marketing, it will all come under the three grades mentioned above.

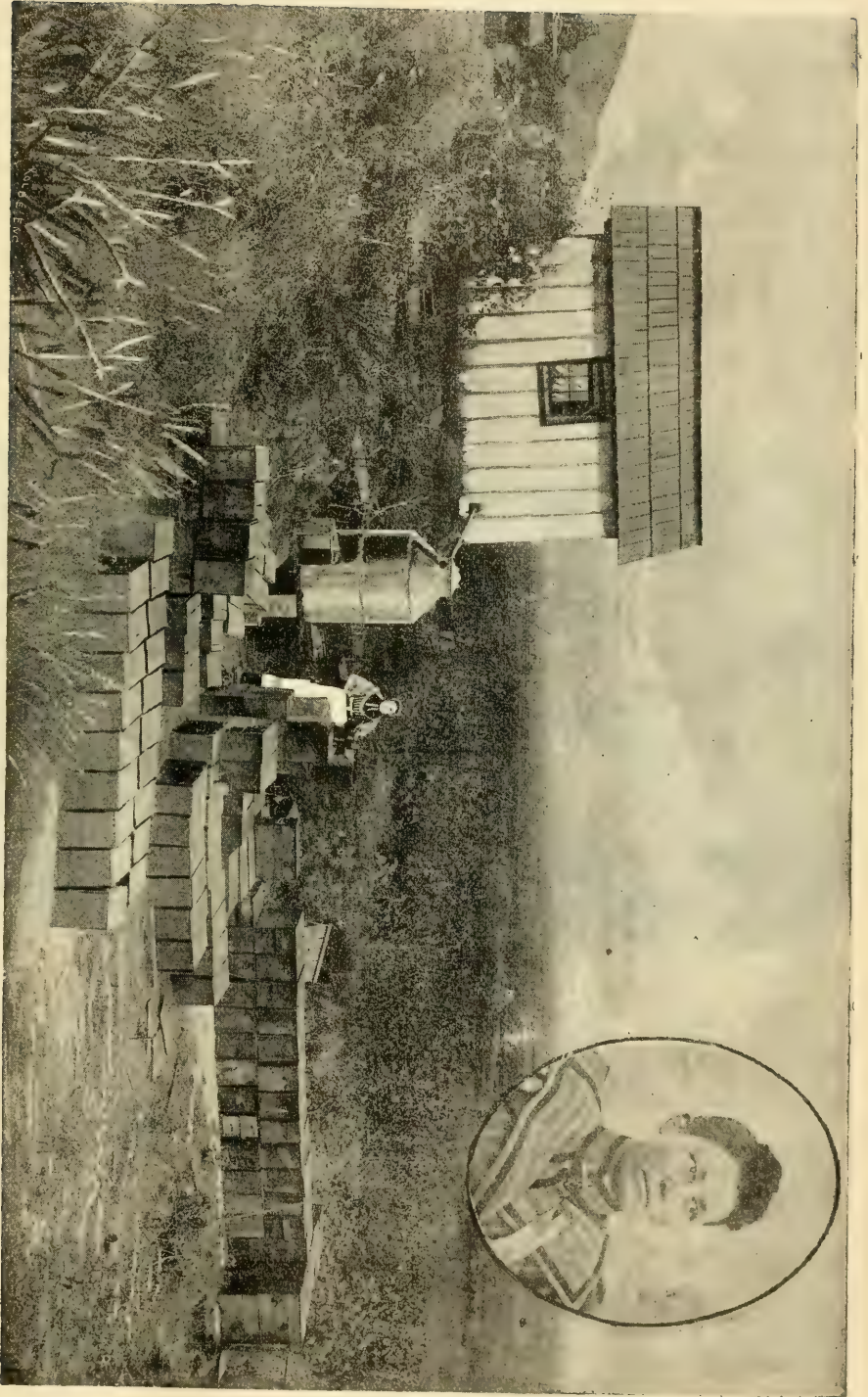
The sages have been so thoroughly written up and illustrated in bee literature that the reader outside the sage districts might readily imbibe the idea that the sages are the only honey-producing plants in California.



CALIFORNIA WILD BUCKWHEAT—HEADS OF BLOSSOMS.

While the sages do produce a large amount of beautiful honey, there is as great (if not greater) a honey-plant that has received but scant attention and no praise whatever; and I find that it is not even mentioned in any of our standard books upon bee culture. Desiring to do justice to a meritorious plant, and place it beside its more distinguished rivals in its true light, I present the photo. of *Erigonum fasciculatum*, or California wild buckwheat.

This shrub belongs to the buckwheat family,

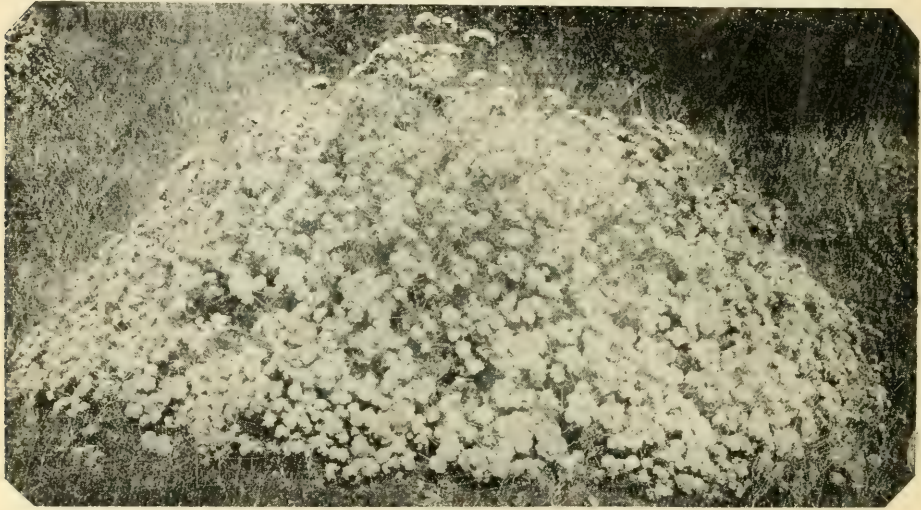


MRS. W. E. CLARK, AND CARLOAD OF HONEY.

and grows profusely upon all wild land in Southern California, with the exception of a few localities. It seems to thrive equally well upon the mountain-side and in the valley; and the nearer we get toward the Mexican line, the larger the growth. When in full bloom it is one mass of flower-heads, each head a tangled compact mass of little pinkish-white flowerets resembling the blossoms of the cultivated buckwheat. The flower-heads are a study in themselves, taking the various fantastic shapes of wreaths, rosettes, shields, etc. It does not burden the air with such a strong odor as the ordinary buckwheat, and would be scarcely detected by the scent.

The bees work industriously upon these blossoms; and from this source come the great yields of amber honey. It is not only profuse in bloom, but it holds its blossoms and honey

and give a fair yield of honey. It is a common remark here, with our older bee-keepers, that a range in which we find the sages, wild alfalfa, and wild buckwheat, can nearly always be depended upon for something of a honey-yield; and it is a bad season indeed when the buckwheat refuses its drops of nectar. There are, perhaps, many localities where the plant is sparingly distributed, or wanting altogether; but the same must be said of the sages and other plants. I conclude, however, that the wild buckwheat is more evenly distributed, and covers a greater area, than any other plant, and is the greatest and most reliable honey-plant in Southern California; and if there are any dissenting or consenting views among my California brethren in relation to this statement, I trust they will let them be known.



CALIFORNIA WILD BUCKWHEAT (*ERIGONUM FASCICULATUM*.)

production longer than any other plant in California. From early in June until into August it has this year made the hive overflow with sweetness and the bee-keeper sing paeans of joy.

Ordinarily this plant fails to secrete nectar from the 1st to the middle of July; but after a wet winter, and after late rains, it yields honey in a prolonged ratio. In places where there is much natural moisture it seems to bloom indefinitely; and I have no doubt that, if a field of it could be put under irrigation, it would yield honey several months. The honey is not so dark, and the flavor not so rank, as that from common buckwheat. The flavor is mild, and many people prefer it to the white honey, which, in many instances, has but little flavor.

Bee-keepers cite many instances where the sages have failed to secrete honey; then a little later the buckwheat would come to their rescue

In relation to the sages, I note in *GLEANINGS*, page 770, Mr. Israel entertains the same opinion that I did of white sage until I saw the bees doing such good business upon it. In the locality I referred to, the bees worked the black sage first; then there were two weeks of uninterrupted flow from the abundant white sage, before the buckwheat came into working order. The bees would flit up the long stalks of white sage from flower to flower, like climbing the golden stairs. The result is some of the most beautiful honey Mr. Israel could wish to examine.

A word to the reader: In studying the figures at the head of this *Ramble*, the reader will notice that it enumerates 145; this divided by 24, the number of issues per year, results in six years and one issue over. For six years, then, I have been a regular contributor to its columns.

In a recent letter to the editor I suggested that the readers would probably be pleased with a change or a stoppage altogether of *Rambles*, and allow the space to be filled with articles from new writers who are coming to the front.

Then, again, it looks as though my travels would not be so extensive as they have been. I have a growing apiary which will hold me down a good share of the year. So, with a few more scratches of the pen, perhaps the long-suffering readers would feel a relief to find the farewell scratch.

THE PRESENT STATE OF THE ART OF WINTERING.

THE SYMPOSIUM IN OUR ISSUE FOR NOVEMBER
15TH REVIEWED AND COMMENTED UPON

By Dr. C. C. Miller.

[It will be remembered that Dr. Miller was to review and bring out the salient points in the discussion from some of our prominent and successful bee-keepers as recently given, and present them in a new light before our readers. This he has done, and the subject is now so well digested that it will be easily assimilated by all, I trust.—ED.]

At the close of the symposium on wintering, occupying ten pages of *GLEANINGS* for Nov. 15, the editor begins his remarks by saying, "It is encouraging. . . ." Without quoting his remark any further, I think those three words may be applied to the whole of the symposium. Careful examination of the articles shows less conflict of opinion than formerly prevailed. Some emphasize one point, some another; but where a man is silent on any given point it is probably because on that point he is in accord with the majority.

It's very cool of you, Mr. Editor, to give a comprehensive *resume* of the series, then say you want me to give the solid meat. Figures of speech aside, all I can do is to look the ground over and see what there is to talk about. To this end I have taken a piece of paper two feet square, written thereon a number of the points mentioned, then put down under each heading the views of the different writers. The remarkable thing about it is to find, as already intimated, so little clashing between them.

FURTHER DISCUSSION.

Let me begin at the very last end, the last line of the editorial comments, "the subject will be open for further discussion if thought necessary." I sincerely hope it will be thought necessary. Wintering has been so thoroughly discussed in the past that it needed a rest. It's had the rest, and may come up again with some degree of freshness. Its very great importance for all living north of a certain degree of latitude makes it worth while to discuss even very small points.

Now, making a big jump back to the beginning, there is found a change of opinion that has been silently but surely taking place as to the time of *beginning* to get ready for winter. Some place the date at about the middle of September, while others say at the time of taking off surplus-arrangements. Very likely the two agree, and those who say the middle of September are in the habit of taking off *supers* at that time. With others, who have no fall flow, the date may be in August.

AMOUNT OF STORES.

Besides having winter stores in place early, emphasis is put upon the matter of having not only enough, but an abundance of stores—not only stores to last through the winter, but to last through the critical time from the first flight in spring till the main harvest begins. Here, however, there is some conflict of opinion. B. Taylor is convinced "that bees winter better with just enough always accessible honey in their hives to feed them safely until warm weather." Whether his belief is correct

or not, I feel pretty sure that in practice he gives his bees more than he thinks they will use before warm weather, if by "warm weather" he means the time of taking out of cellar; for there is a difference of several pounds in the amount different colonies use; and as he doesn't know beforehand which will be the heavy consumers, he must in his winter preparations consider all heavy consumers. If he gives all enough so that he feels *sure* they will have enough until first spring flight, some of them will have enough to carry them through until the harvest. Whether it is best to have such an abundance in the hive that no colony will need any looking after until the main harvest, is one of the things that may well belong to that "further discussion." Whether my own theory agrees with his or not, my practice agrees at least so far that it is with me a very comfortable thing to know that I have some extra combs of honey ready to be given to any colony that may ask for it before the harvest.

As to the manner of ascertaining the amount of stores, not much is said—the little that is said inclining to the opinion that the colonies are weighed "with the eyes," as J. E. Crane expresses it—that is, by looking in the hive at the frames. Considering the uncertainty of this, unless every frame is carefully inspected, and that even then it's a hard matter to come within several pounds of the exact weight, I can not help thinking that most would prefer to weigh their hives if they knew how easy a thing it is. With a spring balance properly rigged you can weigh the hives with less time and labor than you can take out and inspect the frames. And then there's a comfortable feeling in the thought that you *know*, and that there's no guess about it. True, you'll not know to a certainty just how much honey there is in the hive, but you will know for a certainty the total weight, and from that you can make a safer guess as to the amount of stores than in any other way.

KIND OF STORES FOR WINTER.

As to character of stores, I think no one says sugar is bad; and when feeding must be done in any other way than by giving filled combs, sugar comes first. Of course, sugar or any thing else may be fed so as to do mischief; as, for example, if a very thin syrup be fed very late. C. A. Hatch puts down wild-bergamot honey as "the very best stores," but not many have that. He admits, however, that "sugar stores are all right for winter if fed early, and good sugar is used." But who in this country can tell any thing about what is *good* sugar? In foreign bee-journals, sugar of the right kind for bee-food is constantly advertised; but there is a lack of enterprise, intelligence, or something, among furnishers of supplies in this country. Although B. Taylor thinks honey-dew sometimes good for winter stores, it is no doubt a safe food to leave out of a hive, or to replace with sugar.

BEST AGE OF BEES FOR WINTERING.

The former divergence of opinion as to the best age of bees to winter well seems to exist no longer, young bees being preferred. The younger the better, only so they have had one flight before going into winter quarters. As tending toward this, H. R. Boardman recommends young queens, they laying later in the fall, with the additional advantage of commencing earlier in the spring. Sometimes, however, bees breed too early. B. Taylor, like the reckless youth he is, butts whack against orthodox teaching, by broadly hinting that bees live just as long when busy as when idle; and this in the face of his own statement that most of the bees in a hive May 1 must be seven months old, whereas he will hardly vary much from the general belief that a worker in the busy season lasts only about six weeks. Bro. Taylor, if you don't want to be gibbeted it will be in order for you to explain or recant. In any case, it looks entirely reasonable to believe that in winter there will be fewer deaths from old age among young bees than among old.

AMOUNT OF ROOM IN THE HIVE.

Much weight is given to the matter of having no more room in the hive than necessary, as against the strange teaching of a late writer in *GLEANINGS*, who claimed that bees were warmer in a large than in a small hive. The generally received opinion is that small colonies consume more in proportion to their size than large ones—an opinion that is perhaps tenable, as suggested by J. E. Crane, only when large and small have the same amount of room. In this connection it may not be out of

place to suggest that, in addition to its other advantages, cramming the brood-nest with stores is practically making less room in it for the bees to keep warm. Whether in general a colony may be crowded on so small a number of combs as to be overwarm and restless, as Mr. Crane holds, may be one of the things that would bear further discussion. "Further discussion" is also provoked by B. Taylor's insisting that bees should cluster "over their stores." It seems to me that his bees must have extra training to induce them to pack their stores below the cluster. Better wintering is secured in shallow hives by F. Greiner, and in hives after the Heddon pattern by J. A. Green. This might also awaken discussion.

SPACE UNDER BOTTOM-BARS.

I think there has been a growing feeling in favor of having extra space under the bottom-bars during winter. No one, to my knowledge, ever expressed a belief that it could do any harm, the only objection being the extra trouble. I am heartily with those who think the advantage more than pays for the trouble. Probably there can be nothing better for the bees than the plan of having no bottom-board or floor, and having the hives piled apart so as to have a great space under. I mean just so far as the air is concerned, although on other accounts I prefer the reversible floor-board, which is only a modification of the rim used by others. The reversible floor-board has the rim attached to it permanently, and is especially convenient for those who change their bees from one place to another; for when taken out of winter quarters it can be ready at a moment's notice to be hauled to the out-apiary. Then it's no small advantage to have hives mouse-proof during winter, as they can easily be by putting coarse wire cloth at the entrance of the reversible floor-board. With no floor-board the mice have full entrance to the hives; and although you think you have a mouse-proof cellar, too often you find in the spring that the mice have been playing havoc with your bees and combs. Mr. Pettit's plan of having an opening at the back as well as front gives air with less room if care be taken to have no clogging. Mr. Crane secures much the same advantage by having an extra entrance half way from top to bottom.

SEALED COVERS.

Some time ago sealed covers seemed deserted by their warmest advocates, leaving that apparently as one of the settled questions. But at least one man stoutly stands his ground amid the general stampede, and says sealed covers are all right. Is it worth while to allow the question a place in the realm of "further discussion," just to convince one stubborn man? Hardly, when it's a matter of mere opinion. But when J. A. Green continues to use sealed covers, and uses them *successfully*, and year after year, that single fact, just because it is a fact, leaves the question still unsettled. If he succeeds where others fail, what makes the difference? I think it is perhaps the general opinion nowadays, that in the cellar, sealed covers are all right. What makes the difference between success and failure outdoors? Is it possible that it may be in the packing over the covers? Mr. Green has 6 or 8 inches of packing over, that packing having a rain-proof cover. Have others who have failed used the same packing?

WINTER PACKING.

For outdoor wintering, packing was never more popular than at the present time, and yet I'm not certain that there are not those outside of this symposium who prefer single-wall hives unpacked for the sake of having the advantage of the sun on the single walls in winter. Possibly the matter of latitude may have something to do with this. The editor is right in remarking that "all are agreed that outdoor colonies should be packed in double-walled hives," if in that class of hives he includes single-walled hives with a winter packing around them. Top packing seems to be considered of more importance than at the sides; and where any difference is made there is more packing on top. Pleasant to know that there's such general agreement in preferring planer-shavings for packing-material.

TIME TO CELLAR BEES.

□ The date for carrying bees into the cellar is set by one at Nov. 1; by another at Nov. 15, and by two others at Nov. 20. I feel pretty sure that, if they had taken room to explain more fully, neither one of them would have said he adhered strictly to the

given date. I suspect they are very much like myself. If I were obliged to name positively at the present time the date at which my bees should be carried in next winter, perhaps I should say Nov. 1. But in actual practice the almanac has little to do with it. One year they will be better off to stay out till December, while I have known a year in which every day that the bees stayed out after October was a damage to them. It's a matter of guess at best. Aim to cellar them immediately after the last fly they'll have before December, remembering that one day too late may be worse than five days too early. That is, it won't do as much harm to have them confined unnecessarily in the cellar five days, as it will to be taken in one day after a flight if that one day is pretty cold. As Mr. Boardman suggests, it makes a big difference when they're taken in as to the matter of quietness. After they have had a fly, the first time the thermometer touches 45° you'll find them pretty quiet.

DARKNESS IN CELLARS.

The editor says the underground room for bees should be darkened; but Mr. Boardman gives his bees the full light of day after they are in the cellar, until the weather becomes quite cold. No one, probably, would want his cellar to be light all the winter long; but some think it advantageous to have the cellar light part of the time. I think this view is gaining ground. The late Jesse Oatman told me that a leading bee-journal not far from the State of Ohio once refused to publish an article saying that at times light could be safely let into a cellar, such a view being thought too dangerous heresy to get into print. [It was not refused for heresy, certainly; but if it did not get into GLEANINGS it was probably overlooked in some way, owing to the large lot of unused manuscripts.—Ed.] I believe the admission of light is a benefit, whenever it can be admitted without stirring up the bees. Like Mr. Boardman, I allow my cellar to stand open until the thermometer inside runs below 40°. Toward spring, when a warm spell comes, making the bees uneasy, doors and windows are opened wide in the evening. That raises a general row in the cellar; the bees run all over the hives, and roar enough to frighten a novice. By morning, however, all are quiet, and I've seen the direct rays of the sun shining right into the entrance of a hive without seeming to disturb them in the least. Sometimes they'll remain quiet all day with the cellar light, and sometimes they'll begin to fly out soon after sunrise. As soon as they show uneasiness I close out the light.

TEMPERATURE AND MOISTURE.

Entire agreement as to temperature has not yet been reached. Possibly there might be unanimity as to temperature if all cellars had the same degree of moisture. For a considerable time 45° has been a kind of standard figure, and the symposium still holds somewhere near that for the average cellar. Elwood gets it down pretty fine by saying 38 to 42° for a very dry cellar, 45 to 50° for a very damp one, and 42 to 45° for one of average moisture. But Pettit wants a damp cellar kept down to 40°, giving as one reason that the bees will thus be kept drier; for as air is heated it will take up more moisture. I'm afraid all will not admit the correctness of that philosophy, and I suspect others would want a moist cellar to be kept warmer. Boardman wants the cellar about ten degrees warmer at the last end than through the principal part of the winter, and I suppose most agree in thinking it well to have a higher temperature toward spring—at least, after brood-rearing begins.

VENTILATION.

□ None of the writers ignore ventilation, and perhaps no one nowadays would insist that bees will pass the winter hermetically sealed. So there's progress in that direction. Enthusiasm for sub-ventilation has faded. For one, I should be just as enthusiastic as ever if it were not for the fear that Mr. Pettit may be right in thinking that a gain in temperature is accompanied by a gain in moisture; and, worse than that, I'm a little afraid noxious gases may be taken up in passing through the earth. If provision be made to carry out the air of the cellar, I'm not much afraid about its getting in. And perhaps it's as well to have it come in at a thousand little cracks and through a million pores as to have it come in all at one spot labeled "Entrance."

As to ventilation of hives themselves, there has

been a gravitation toward ventilation at the bottom, and larger entrances than formerly. I suspect convenience has much to do with the matter. I have some doubt whether it matters in a cellar whether the bottom be all open with the top sealed tight, or the top all open with the bottom sealed tight, or whether both top and bottom be open with the air passing through. Only in the latter case there must be so small a passage either at bottom or top that the air will not pass through faster than the bees can use it. In my first cellaring, hives were entirely open at top, and sealed tight at bottom. That is, they were box hives turned upside down. That was Quinby's plan, and it was the most convenient with box hives. With the present hives it's more convenient to have the opening all at the bottom. If the opening is both at top and bottom, it's difficult to adjust it to the wants of the bees. Of course it would be impracticable to have hives all open at the top; but at present the majority think it easier to secure right ventilation by having the top slightly open in addition to the opening at the bottom.

BEHAVIOR OF BEES IN WINTER.

I suspect that at least part of the battles that formerly raged over the matter of hibernation arose from the fact that all did not agree upon the meaning of the word. Very few, if any, will now contend that a bee hibernates as do other animals to which the term is applied. If any one should yet think that a colony goes through an entire winter in a dormant condition, a short time spent in a bee-cellar will disabuse his mind. Whether the guess given in the symposium, that there is a waking-up once a week, is correct, I do not know. I suspect that 24 hours might come nearer the truth. Mr. Pettit takes the ultra ground that not the slightest noise of humming should be heard in perfect wintering. I don't know about that. I do know that I have had bees winter in such condition as I think would satisfy almost any one, and yet I never went into the cellar without hearing what is often called a "contented hum." And yet I must confess that, by looking into a single hive, I could generally see no movement.

FIRE IN CELLARS.

Two in the symposium keep fire in the cellar. I suspect that's a larger proportion than will be found generally among those who cellar their bees. Of those who have tried it and abandoned it, it might not be out of place to inquire whether there may not have been a wrong use of a right thing. Mr. Boardman says it grows in favor with him. I'm not sure whether it does with me, but I'm sure the conviction grows that it is all right. If a cellar stands too near the freezing-point, you can bring the temperature up by making the cellar closer; but you'll have better ventilation and air by bringing up the temperature with a fire. We make fire for folks in winter, and no harm comes of it. Why not for the bees? The fire is put in an adjoining room, not in the same room with the bees. Just why, I don't know. Perhaps the fire is made with wood, in which case there might be too sudden a change of temperature, and the light from the burning wood might be mischievous. For my own use I would no more think of putting the fire in an adjoining room than I would a stove for heating a sitting-room. But I use anthracite coal altogether. A small cylinder stove keeps a steady low fire, and the door of the stove is left wide open all the time. That helps ventilation. I think some fear that bees would fly into the open door, but I never knew a single bee to do so. The fire is kept going day and night all winter long, unless a spell of weather comes that makes the cellar too warm. I may mention that those colonies that stand nearest the stove winter as well as any.

TAKING BEES OUT OF THE CELLAR.

The time mentioned for taking bees out of the cellar is about April 1. Here might be made the same remark that was made about putting bees in. It's a matter of weather rather than one of date. For some years I went by the blooming of soft maple. But that sometimes fooled me, for a cold spell came after they were in bloom, making me wish I had left the bees in the cellar. So now, when the maples bloom, I wait till it seems so warm and pleasant there isn't much chance of more winter weather. That may be when the first maple-blooms show, or it may be two weeks later. And the maples don't watch the almanac closely.

Greiner takes his bees out at night. I prefer Boardman's plan of taking them out on a warm day so they can fly at once. If they are taken out at night, the thermometer may sink before morning below the freezing-point, making each day they are longer confined in the hives worse than a week in the cellar.

Greiner says, "In placing them on their stands I pay no attention to their former location the fall previous." I think some of the bees will go back to their former locations, but I don't know that any harm will come of it. When they first come out of the cellar they seem to be of one scent—at any rate they unite peaceably, and Boardman takes advantage of this to unite at once any that need uniting.

FINALLY.

When I commenced this symposium I thought I could confine to less than a page what I had to say. But I didn't know. I haven't said near all I wanted to, and it's more than a page. You might, Mr. Editor, run it as a serial through the year 1896. Some people like continued stories.

Marengo, Ill., Nov. 25.

[Instead of continuing this in several issues, as hinted by the doctor, I thought we should get a better bird's-eye view to have it all in one issue, and use a smaller face of type. We can't get a bird's-eye view by looking at a spot here and there in the different issues of GLEANINGS. The subject is now open for further discussion. —Ed.]

TENEMENT WINTER CASES.

HOW AN EXTENSIVE BEE-KEEPER OF YORK STATE PUTS UP HIS BEES.

By W. L. Coggschall.

My bees are from 3 to 16 miles from home, and are packed in winter cases with dry sawdust that I keep from year to year. The size of packing-case is 6 ft. long, 2 ft. wide, 2 ft. high on back, and 2 ft. 6 in. on front, and is made of matched pine. Such a box will hold eight 8-frame Langstroth hives, by piling them two tiers high. Slots are cut in the high side, just opposite and corresponding with the entrance in the hive, and a block nailed on so the bees have an alighting-board. When preparing to pack I move four hives out of their position in the row, and then put the case in their place. I now put the four colonies into the case, and shove them tight to the front (my hives do not have porticoes), so the entrances correspond with the slot in box. I take off the enamel cloth and put on brussels carpet, or ingrain; then throw on the sawdust, and pack well between each hive, leaving $\frac{1}{2}$ in. of sawdust on top of the carpet, after which I put on four boards just the size of the bottom of the hive. I now set in four more colonies, and apply carpets and the sawdust. Over the whole I put a water-tight roof. I used shingles at first, but now prefer sheet iron, painted.

After the apiary is a packed I go around and put in strychnine, which is put in cookies prepared at home, to kill the mice. The winter case should be 10 in. from the ground, and I usually raise them up in October. I usually go around once in the winter and clean out the entrances, and put in more poison, and then in the spring, and take out those that are dead,

which is not more than 2 to 8 per cent; then I go and unpack them just as apple-bloom ceases; then they are all full of brood.

Old brussels carpet can be bought of rag-gatherers for 2 to 4 cts. a pound. They will last a long time—5 years if they are put on the bees the same side down that is used on the floor.

Two men can put up for winter 100 to 125 a day, and go eight or ten miles, and can unpack them faster.

West Groton, N. Y., Nov. 15.

[This was written in response to our request for an article for our symposium on wintering that appeared in our Nov. 15th number. As it came too late for that number, we give it here. —Ed.]

THE WINTERING PROBLEM.

AN IMPORTANT SUGGESTION; A UNIFORM TEMPERATURE IN THE CELLAR NOT DESIRABLE.

By R. McKnight.

Of all the problems bee-keepers are engaged in solving in this northern climate, the above is the most important; because successful wintering means a measurably satisfactory honey-harvest. I am not going beyond the bounds of truth when I say the solution of this all-important problem has engaged my own serious attention. I have been so situated that its consideration forced itself upon me.

During the last 15 years I have cared for from 2 to 250 stocks annually. About half of these were kept in my home apiary, where I have a good bee-house especially constructed with a view to successful wintering; and the other half in a yard about 15 miles from home, where there is no suitable cellar or bee-house, and the bees must be wintered outdoors. This has given me an extensive experience in the relative merits of the two systems of wintering.

It is not my intention to here discuss the advantage of the one method as compared with the other, nor to minutely detail the best course to follow in either case; but, rather, let me outline what is necessary to successful wintering under any circumstances. This includes stores, ventilation, and packing (the last is important only in outdoor wintering).

The first essential to successful wintering is plenty of bees, with ample stores against the time of need, which, with me, lasts from October till June. This consists of sealed honey or sugar syrup.

There are other minor matters which need attention, and which will commend themselves to the experienced bee-keeper, but which demand too much space to be here dwelt upon.

VENTILATION.

What type has been employed in printing the opinions of people on this element in the successful wintering of bees! and yet how little we know about it! I was especially impressed by this fact on reading what Mr. Elwood wrote

on page 815 of GLEANINGS. The theory he there broached has awakened in me thoughts I never before entertained on the subject, and may, if true, account for the alleged fact that bees wintered outside are less liable to spring dwindling than those kept in a cellar or bee-house. What is the true theory? It is, as I understand it, that bees, when wintered indoors, should be surrounded by atmospheric conditions, and kept at a temperature sufficiently low to throw them into a state of hibernation, in which the functions of life are partially suspended; that they should be aroused from this state of torpor at regular and necessary intervals; that they may partake of sufficient food to keep them strong and healthy; that they may be aroused to the desired degree of activity by raising the temperature of the repository in which they are kept; that, after having satisfied the demands of nature, they should be returned to a state of quietude and lethargy by again lowering the temperature; and that this should be repeated, when necessary, during the period of confinement; that, being thus kept quiet, and fed when required, they will be put out in the spring well nourished, having strength and vitality calculated to successfully carry them through the trials of spring.

How often these periodical revivals should be brought about, and how long they should continue, remains to be determined by experiment. Mr. Elwood quotes the opinion of the late Mr. Quinby, that "an occasional fire in the cellar is useful." It seems to me this opinion is along the lines of the above theory. We all know bees wintered outdoors consume more stores than those kept inside. May not the cause of this be that, in the latter case, they are subjected to more frequent and more violent changes of temperature, and, in consequence, afforded more opportunities to feed, which may account for their alleged ability to survive the springtime.

If this theory be found to be correct, it will change our present practice materially. The orthodox belief of a "uniform temperature of from 42 to 45°" must give place to a new faith; namely, that *uniformity* of temperature, instead of being necessary to safe wintering, is one of the prime causes of bees being put out in the spring in a weak and debilitated condition, ill fitted to enable them to pull through till bloom time. I may have misinterpreted Mr. Elwood's position; any way, what he has written has afforded me new food for thought on the wintering problem.

MATERIAL FOR PACKING.

This may embrace whatever is used to fill up the space between the outer case and the hive it incloses, as well as the materials employed to fill the cushions placed over the brood-chamber. Any of the materials commonly us-

ed for packing are good enough so long as they are dry when put in, and kept dry while it is in; but there is a great difference in the value of the various materials that are used for filling the cushions. The best of these is carded wool; next in order of value is cork dust. Chaff should not be used. What is needed is something that will transmit the moisture—not absorb it. Dry sawdust, such as is made by ripping up dry lumber in a factory, will serve the purpose. I have tried all these, and I found chaff cushions come off the hives in the spring matted and mildewed, and those filled with wool or cork dust come off as light and dry as the day they were put on.

Owen Sound, Ont.

AMONG THE BEE-KEEPERS OF WISCONSIN.

By Harry Lathrop.



On the 12th of September I started on a trip through the basswood region of Southern Wisconsin. A short account of what I saw and heard may be of interest to the readers of GLEANINGS.

Going first to Wauzeka, Wis., situated on the Wisconsin River, I there took the Kickapoo Valley R. R., which runs up the river 35 miles to a village called Soldiers' Grove, passing through Crawford Co. The valley is narrow in most places, with high bluffs on each side, and one can not see what is beyond these ridges as he rides along. The bluffs abound in basswoods, while the river-bottom is a tangle of fall flowers. I met only one bee-keeper on the way up. I talked with him a few moments while the train stopped at a small station. He did not appear to be a very advanced bee-keeper, and said he did not take a bee-paper. I asked him if he would take GLEANINGS.

"No," said he, "I don't like it."

I asked him why he did not like it, and he replied, "There is too much Christ in it."

How impossible it is to please everybody! But I trust that this brother will soon change his mind, and learn that GLEANINGS is his friend, not only because it will help him to do better with his bees, but because it *has* Christ in it.

From Soldiers' Grove I took the stage to Viola, 15 miles further up the river. From this point the country becomes more beautiful. The hills remind one of the highlands of the Hudson below West Point, N. Y. There is a great

abundance of thrifty basswoods; and the hillsides, being very steep, there will always be much of it that will be left standing.

The stage-driver, I ascertained, was also a bee-keeper. He had about 20 colonies; did not take a bee-paper; said he knew enough about bees to carry him through. I thought I would test him a little, and the following conversation took place:

"Mr. R., did you ever have any experience with foul brood?"

He hesitated a moment, and replied:

"Yes, I had one case last year."

"What do you consider the best way of treating it?"

"I guess the best thing to do is to burn them up. I burned one last year."

I agreed with him that his treatment was all right for foul brood, and he went on to say that he rather thought he had a case of it in his yard at that time, but had been too busy to attend to it; "and," said he, "I have seen cases of it so bad that *they would lay a dozen eggs in one cell.*"

At this point I opened my eyes a little wider, but concluded to say no more on the subject.

In the vicinity of Viola there are several bee-keepers who number their colonies by the hundred, and usually produce good crops of honey.

From Viola I went westward in Vernon Co. to a point near Viroqua. Here I visited Mr. W. M. Cox, who in times gone by has produced some fine crops of honey. The poor seasons of late have somewhat dampened his ardor, and very much reduced his stock. But he intends to build up again, and try to do better. He has taken GLEANINGS for many years, and, unlike the other man referred to above, he likes it *because* it has so much of Christ in it, and says it has been a great help to him in his Christian life.

Returning to Viola, my friend and brother John Willan, who is an evangelist in these parts, took me with his pony team 15 miles further up the river to a place called Rockton. We saw many good locations for bee-keeping; great quantities of basswood in the hills, and very few bees kept. Some of the names in this valley would bring a smile to the face of a judge. At one place John pointed to a small valley entering from the east. "That," said he, "is Goose Creek. A man of the name of Gander used to preach there. On the hill to the north lives a family of Drakes, and a short distance in the other direction is a family of Goslins."

How is that for a web-footed community?

On returning to Viola I visited the home and apiary of Mr. Andrew McCarty, the successor of M. A. Gill, well known to the readers of GLEANINGS. Mr. McCarty has a beautiful home, a good wife, and 200 colonies of bees, 100 of which are in the home apiary, and the rest at a place several miles down the river. He uses the 8-frame Langstroth hive, and works exclusively

for extracted honey, as do nearly all other bee-keepers in this region, extracted honey being much easier to transport to the railroad. Mr. McCarty is one of the very few bee-keepers who produced a crop of honey this year. He accomplished it by moving his bees to a place where the basswood-flowers were not killed by the severe frosts in May.

My next stop was at Yuba, on Pine River, in Richland Co. Here I visited Mr. E. C. Priest, the only bee-keeper in the immediate neighborhood. Mr. Priest had taken only a small crop of honey, and confessed that he had partly neglected his bees for several years back, as he has built and equipped an excelsior-mill, and worked hard to make it a success; but it has not paid. I remarked that he would have done better and had an easier time if he had increased his bee-business, and attended to it properly, and let the excelsior-mill alone, thereby also avoiding the destruction of the basswood timber. He assented that such was the truth. I find the tendency in this country is to neglect the bees for various kinds of ventures. Very few seem willing to make a specialty of honey production, for the reason, as they say, they are not sure of a crop of honey every year.

From Yuba I went down Pine River Valley, passing on the way one of the apiaries of the successful bee-keeper Mrs. Pickard. At Richland Center I was met by Bro. C. A. Hatch, who took me out to his beautiful home and farm. Mr. Hatch is too well known as a bee-keeper to need an introduction here. He and his brother, A. L. Hatch, are extensive fruit-growers. I was surprised to find them successfully producing a large variety of choice apples, plums, cherries, grapes, and small fruits. Of course, the crop was short this year on account of the unusual frosts. Their orchards are situated on the top of high clay ridges, entirely unsheltered. There are many such ridges in Southern Wisconsin, but there are no orchards on them. The apple-trees are usually placed along the creek bottoms, where they do not thrive. These orchards of the Hatch brothers are an object-lesson to the bee-keepers and others of our State, because they show what can be done in our climate; and if there is any branch of business that goes well with bee-keeping I think it is the production of the larger fruits which are gathered after the busy honey season is past. I shall never forget the beauty of these fruit-farms nor the kindness shown me by both the Hatch brothers during my short visit. When I started for home from here, C. A. took me to a small railroad station below Richland Center, and pointed out the place where the out-apiary of the late S. I. Freeborn had made large crops of honey from a kind of mint after the close of the basswood season; but the large number of colonies once owned by him is now greatly reduced. In fact,

the bee-keeping industry is somewhat neglected in these regions, and the amount of honey produced is but a small per cent of what is possible.

In closing I will say that I am not trying to beat Rambler out of his job, though I do enjoy traveling among the bee-keepers, and looking up the resources of my State. I am a married man, and love my home and family, therefore my rambles must be few and far between.

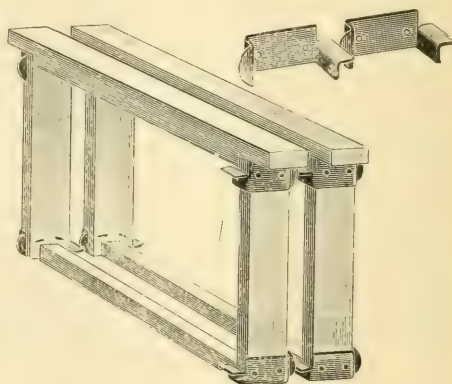
Browntown, Wis., Oct. 23.

THE STEPHENS SPACER.

IMPORTANCE OF GOOD LUMBER FOR TOP-BARS.
AN OPEN LETTER TO DR. MILLER.

By Geo. W. Stephens.

Dr. C. C. Miller:—I see you have dropped the discussion of hives, and taken up frames; and in your article on "The Right Kind of Frames," in GLEANINGS, October 15, you point out an objection to the Stephens spacer. Well, I suppose spacers ought to be discussed along with other things; they are a necessity to any one who is at all particular and cares to have straight combs, and to get rid of propolis. fair discussion will not injure a meritorious article, and I believe in the survival of the fittest; but my mind is not clear as to whether you are putting up one of your jokes, or are in earnest; for, you see, the objection you raise applies to the top-bar and to the man who nailed the frames, and not to the spacer at all. On the same line of reasoning you might say the Stephens spacer will not prevent top-bars from warping. I have some top-bars, made by a popular manufacturer, that are warped, or sprung out of line, $\frac{3}{8}$ inch; but I never thought to blame the spacers. I think it is because they were made of poor lumber, or else it was not well seasoned.



STEPHENS' FRAME-SPACER.

Top-bars should be made of first-clear, well-seasoned lumber; and if pine will not do, something else should be used; and then they should be cut true and to an exact size, and great care

should be used in nailing the frames. I do not think there is any excuse for top-bars varying in width, although I may be mistaken. But if they are cut true to an accurate size, and all alike, I think—in fact, I am sure—your objection to the spacer will be overcome, and you would then secure both fixed distance from center to center and exact space between top-bars, and I believe one is about as essential as the other. The price of the spacers may seem high; but that will be governed by the demand somewhat. When they become better known, and there is more of a demand for them, I have no doubt they can be manufactured and sold at a lower price.

If the end-bar were widened to $1\frac{1}{8}$ in., the same as the top-bar, as you suggest, I doubt very much whether you would find it any easier to nail the frames true; and if the Stephens spacer were to be used, the flanges (or wings) would have to be shortened $\frac{1}{8}$ all around, and the inside lengthened $\frac{1}{8}$, in order to clasp the end-bar. The space between the shoulders of the spacers would then be less than $\frac{1}{4}$ in., and the bees would fill it up with propolis—a thing certainly to be avoided when possible. If the end-bar were made narrower than one inch, the flanges of the spacer would have to be correspondingly lengthened, and would be liable to bend unless made of heavier material, which would add to the cost. So you see I settled on inch-wide end-bars advisedly.

I certainly feel flattered that you find no worse fault with the Stephens spacer, and name an objection that can be so easily remedied, notwithstanding the fault lies elsewhere; but if you were using them on your frames to any extent you would then know what a pleasure it is, comparatively, to handle frames in a nine-frame Dovetail hive, without that superfluous piece of furniture called by courtesy a follower.

Denison, Iowa, Oct. 28, 1895.

[Dr. Miller replies:]

In some respects I think the difference between us is one of words rather than ideas. I admit that, with frames that are made perfect in every respect, the Stephens spacer will not only space correctly from center to center, but will also leave top-bars apart at exact distances. I so stated on page 775. I said, "One of these will secure the other if all frames were made exactly true," meaning the spacing from center to center and the spacing between top-bars.

I can not agree with you that it is as important to have the right distance from center to center as it is to have the right distance between top-bars. A variation of $\frac{1}{16}$ of an inch in the distance between top-bars would be likely to make an appreciable difference as to the amount of brace-combs, while a variation of $\frac{1}{16}$ from center to center would hardly make an appreciable difference in any direction so long as the distance between top-bars is kept exact.

But what we have to do with in actual practice is frames that are *not* true in every respect. At least that's what I've always had to do with. I don't think I ever yet had as many as a hundred frames in one lot that would give exact distances between top-bars by applying Stephens spacers. I doubt whether I ever shall have, and I suspect that I have as true frames as the majority. In such cases, you may lay the blame where you like; the fact remains that the Stephens spacer will not make as good work in preserving an exact space between two top-bars as a nail driven in to the proper depth.

I doubt if any better wood than pine is likely to be used, and I think you are right in believing that the very best should be used, and not poor stuff for the sake of using up scraps of lumber.

You are probably right in settling on an end-bar 1 inch wide as best for the Stephens spacer. But the same reason that makes me want the small space between top-bars makes me want the small space between end-bars and bottom-bars, although the latter is not so important. So I want a spacer that will accommodate the frames rather than to have frames to accommodate the spacer. At the same time I must say that, with frames to suit them, I don't know that any thing better than the Stephens spacer is to be desired.

You are right in saying that, with frames exactly true, the Stephens spacer will secure both correct distance from center to center, and also between top-bars; but any other spacer will do the same with such frames.

The matter of price I did not take into consideration, and it is not my place to meddle with your business matters; but since you have mentioned it—rather the editor first mentioned it—it may not be out of place for me to question the policy you have adopted, that of putting on a patented article (and I believe in patents) a higher price to be paid by those who are first to see its merits and help to introduce it, and then a lower price to others. If I had confidence that an article would become standard, I think I would anticipate its popularity, and make it help advertise itself by selling the first at as low a price as I thought would rule after being well introduced—somewhat on the common principle of introduction prices, which is only one form of advertising. But, as I intimated before, that's none of my business, and you have a right to put what price you please on your own goods.

C. C. MILLER.

Marengo, Ill.

[I consider the Stephens a really good spacer. Perhaps in the line of metal devices it is the best. Although we illustrate it on page 418, May 15th issue for last year, yet for the convenience of our newer readers we reproduce the cut that then appeared.—Ed.]

H. W. SCOTT.

PRESIDENT OF THE VERMONT STATE BEE-KEEPERS' ASSOCIATION.

By A. E. Mamm.

Mr. Editor:—I dislike to do any thing on the "sly;" but sometimes if one can surprise a friend in a pleasing way it becomes gratifying to the performer to do so. Therefore it is with the greatest pleasure that I present the readers of GLEANINGS with a picture of the worthy president of the Vermont Bee-keepers' Association, Mr. Horatio William Scott, who was born at Barre, Washington Co., Vt., Aug. 10, 1870. In the spring of 1884 he removed with his parents on a farm in the town of Williamstown, Vt., where, in the fall of that year, he became the owner of two colonies of bees, although in the spring of 1885 he found himself the owner of only one colony, having lost 50 per cent in wintering. He soon procured Root's A B C and a Clark smoker. Armed with these two very useful and essential implements he studied and



H. W. SCOTT.

worked, and watched and waited, with the result that he secured 75 lbs. of honey, which netted him a profit of \$15.00. With this success the "bee-fever" got full possession of him; and before winter set in he purchased five more colonies, making six in all, which were successfully wintered.

The seasons of 1886 and 1887 proved to be poor ones for surplus honey; but a good increase of colonies was secured. At this point Mr. Scott concluded that it would be to his advantage to work with some experienced bee-keeper. He therefore secured a situation with the writer, with whom he served during the seasons of 1888 and '89. Mr. Scott, being a very apt and diligent student, soon mastered the "mysteries of bee-keeping" so far as they were revealed to his tutor.

I must say right here, in justice to the sub-

ject of this article, that, although I have had a great many students in the apiary, I never had one more diligent and trustworthy than was Mr. Scott. I always found him reliable and respectful in every respect and place.

In the season of 1890 Mr. Scott took charge of and managed the apiary of Mr. J. W. Smith, of Stowe, Vt., with perfect satisfaction to the owner. In the fall of 1890 he entered Goddard Seminary, from which he graduated in June, 1893, having completed a course of 117 weeks in 105 weeks.

On the 27th of January, 1892, he was elected secretary and treasurer of the Vermont Bee-keepers' Association, which office he held with honor and credit to himself and the association until he was elected, Jan. 18, 1895, its president, which office he still holds. He acted on the committee appointed by the association which secured recognition by the Vermont Experiment Station, and in the establishing of the department of apiculture; he having had an oversight of this department for two or three years. Mr. Scott having been a close student of bees and their habits, and an extensive reader of apicultural works, was thus fitted for this position, and for a place in the front ranks of apiculture.

At present Mr. Scott resides at Barre, Vt., where, two years ago, he entered the law office of Burney & Howe, where he began the study of law; and, if I mistake not, has since been admitted to the bar.

He is, or has been, justice of the peace for Washington Co.; a member of the I. O. O. F.; is also a part owner, and clerk and treasurer, of the Acme Granite Co., of Barre.

Although Mr. Scott is engaged in other business, both public and private, he is still interested in bees, and has an apiary of his own which he manages very successfully, keeping well up with the march of progress. Mr. Scott is well worthy of the confidence of all bee-keepers, at home and abroad.

Bristol, Vt., Nov. 25.

HOW LONG DO EGGS KEEP?

HOW MANY EGGS DOES A QUEEN AVERAGE PER DAY DURING THE YEAR?

By Ph. J. Baldensperger.

How long eggs will keep is another many-sided question; for, while in a very cold or cool climate they may be spoiled in a few days if left exposed to cold nights, so will they dry up if left out in very hot weather; while some eggs—I suppose the most vigorous ones—will keep ten days or more in fairly good weather. Out of the number, if you try a comb full of eggs some seem to dry up a few hours afterward, while others stand several days, and a very few stand ten or more days. Sealed brood will resist longer. Even the chilly drones will live as long

as possible. I knew a full frame of drone brood, years ago, in Palestine, which I had discarded, and for the time being I did not know where to put it, so I left it in the honey-room. Well, 17 or 18 days later I went and uncapped the brood and found them as vigorous as though they had just been taken out of the hive. This was in July. Again, this year a colonel bought a hive of bees (Algerine-French) of me. In his absence his gardener wanted to work around the hive, and shut it up, leaving them thus imprisoned for 36 hours in the heat of the July sun. Naturally, all were dead. This was July 20th, 1895. The servant brought me the hive and combs, to give them another stand instead. I had very much to do; and to avoid a bad smell, etc., I gave the five combs containing the dead brood. I knew by experience that such brood of suffocated hives invariably died with the bees. July 30, fully ten days after the accident, I looked for the comb containing dead brood. To my astonishment, more than half were out and crawling out, but in a lamentable condition—dwarfed. The fuzz seemed stuck to the body; the wings were badly developed; they had outlived the catastrophe of their elders, but it was not worth while to have such bees, for they only barely lived.

A queen can lay 3000 eggs a day, but not every day. Here are observations on a colony of bees I followed in Palestine, January to December, 1891. As nearly as I could make out, the colony numbered some 10,000 bees Jan. 1.

	Daily average.	Total.
Average laying from Jan. 1 to 20, '91,	100	2,000
Spring waking-up, Jan. 20 to Feb. 7,	686	11,988
Almond flowers, Feb. 7 to March 3,	790	16,800
Beg. of orange-blossoms, Mar. 3-18,	2333	34,995
Full orange-blossoms, Mar. 18, Apr. 10,	2610	57,200
Beg. of no flowers, then cactus, Apr. 10 to May 21,	1000	40,000
Chaste-tree blossoms, May 21, June 17,	2111	56,997
Chaste-tree, then thyme, June 17, July 10,	2277	50,094
Thyme and end of it, July 10, Aug. 3,	1250	30,000
Thistles, Aug. 3-29,	460	10,960
Honey in the hive, Aug. 29, Sept. 13,	20	4,000
Peppermint and others, Sept. 13, Oct. 14,	115	3,000
Nothing outside, Oct. 14 to Nov. 11,	35	1,000
Nothing outside, Nov. 11 to Dec. 10,	28	1,000
Nothing outside, Dec. 10 to 31,	0	
		320,034

About the same at the end of the season as regards the number—20,000 bees. At all events, this gives us an average of 76 eggs a day for 365 days, or 1760 eggs a day if we take the honey-flow season from March 3 to August 3. The colony did not swarm, and at the end of the season it was reduced to very nearly what it was in the beginning; 300,000 bees were hatched, and passed away; the hive had produced nearly 180 lbs. of honey. This honey was taken by the extractor, April 10; April 18, orange-blossom honey; June 13 to 29, chaste-tree honey; July 10 to August 3, thyme honey.

Where the bees of a hive go to is, of course, to be attributed to divers accidents—visits, etc. The average bee's life during a honey-flow is

between 35 and 40 days; but this is only the average; for suppose we introduce 6000 eggs, newly laid, into a colony, mark well the difference, take blacks for yellows or yellows for blacks. After the 21 days required to hatch, and 40 days supposed to be a bee's life, you can hardly find a hundred—often less—in some hives. Even 35 days is the extreme limit. The few bees that remain are worn out, and can hardly be distinguished. Where they went to is: 1. Their work wearing them out; 2. Winds, rain, cool weather, overtaking them while far from their hives; 3. Birds, reptiles, insects, spiders, which lurk for them either at the entrance or in the air or on the flowers. The nearer a bee arrives to or passes the thirty, the easier it is caught or killed. It seems, of course, at first sight, that the number of these losses is too small; but it must always be remembered that it is the infinitely small that forms our doings, sayings, and surroundings.

Great streams from little waters flow;
Great oaks from little acorns grow.

I find very nearly the same figures as the foregoing given in a hive I observed this year at Nice and in the Alps; and I find the average of the honey money months, March 14 to August 3, 1857 per day—almost 100 eggs more here than in Palestine, without giving as much honey—not very from half the amount only. I extracted, too, May 19 to June 3, orange-blossom; July 13 to 27, and August 14, lavender.

Nice, France.



PREPARING FOR NEXT SEASON.

Question.—Having my bees all fixed for winter, I wish to know what I can best do during the coming winter months to be of the most advantage to me for next summer's operations with the bees.

Answer.—The apiarist who is to be successful has little time to waste; and I judge our questioner is made of the right material for a successful apiarist, for he wants to know what to do next. Right here I wish to say that, if any have started into the bee-business on the supposition that "bees work for nothing and board themselves," they had better get out of it, for no success can be obtained along that line. As soon as the bees are properly prepared for winter, which should be as early as November 15th to December 1st, we are ready to go to work for the next season, and so we commence operations at once, remembering the proverb of the ancient wise man who says in the "good Book," "Seest thou a man diligent in business? he shall stand before kings."

The first work is to get our wide frames, or cases, and sections which have been in use the past season, in readiness for the next harvest. Get them around, and scrape off all the propolis adhering to the tin separators and all the bits of comb, should there be any, fastened to the bottoms of the wide frames. All these bits of comb, as well as all others, should be saved; and to best save them the wax extractor should be close at hand, and all waste pieces of comb put into it during the whole season. As often as it is full, get out the wax and have it ready to fill again. All sections which are partly filled with honey should have the honey extracted from them (unless you think you will need it to feed in the spring), as the honey will not correspond in color or quality with that which the bees will put in to finish out the sections the next season. To extract this nicely, fix a shelf close to the ceiling of your room; put the honey thereon, and keep the room so warm that the mercury will stand at 90 to 100° for three or four hours before you commence to take the honey out. By placing the honey near the ceiling we do not need near the fire to heat it that would be required if placed on the floor or a bench. These partly filled sections, if extracted without warming, would all be ruined, so far as the combs are concerned, and the apiarist's prospects of a large yield of honey the coming season would be ruined also; for, according to my value, they are better than money in the bank. After the honey is extracted, these sections are to be put in the center wide frame for each hive, or, in other words, are to be used as "bait sections," which should always be placed in the center of the sections on top of the hive, so as to secure an early commencement of work by the bees in the sections, and so the full sections shall not all come off at once, which would cause the bees to be loath to enter a second lot. Fill the rest of the wide frames, or cases, with empty sections, each having a starter of *thin* foundation in it, or fill the sections with full sheets of foundation, as you prefer. Having all complete, pack them away where they will be ready for use, at a moment's notice, next June.

Our next work is to secure our material for further sections by buying or otherwise, and make it up. To arrive at the number I wish, I allow 150 one-pound sections for each old colony I expect to begin the season with, in the spring; and after 25 years of experience I find this estimate not far out of the way. It is well, always, to be sure and have enough, for it is far better to have a few sections left over than to find our sections exhausted in the midst of a good honey-flow. Many put off this getting-ready part till spring, so that they may know how the bees winter; but the one who expects to make a bee-keeper worthy of that name will not do this; for if the getting-ready part is put

off till just before the honey-harvest, the result almost always shows a greater or less loss.

Having the section part all in readiness, we next make what hives, frames, covers, etc., we think we shall wish for use the next season. Having these made, wire the frames and put in the brood foundation, so this part will be in readiness also, resting assured that the bees will work this foundation just as well when wanted as they would had it been put in the frames an hour before placing in the hive.

After having the frames thus prepared, place the number you wish to use in each hive, and pack all nicely away.

Then there are the shipping-crates for honey, to be gotten ready; shipping-cages for queens, if we raise queens for sale; and anything or every thing which we have planned by way of experiments which we wish to try in the near future, all of which, as far as possibly can be, should be prepared during the wintry days so that, when spring opens, we shall have nothing to do but to give our whole attention to the bees.

If you are to succeed in the bee-business you will prefer to do these things, and find pleasure in doing them, rather than idling the winter away waiting for spring to come to see "what will turn up" with the bees and your business. Above all else in importance is a thorough knowledge of apiculture; and the long winter evenings which are now here are just the time to gain that knowledge. Get around the back volumes of GLEANINGS and other bee-papers, if you have them; also, if you do not have them, procure one or two good books on bee culture, and read them thoroughly, so as to put what you learn in practice the next season, and thus you will have, in the majority of cases, an answer to what would be a puzzling question to you otherwise, in your own head, instead of having to go to some one else for an answer, just at the busiest season of the year. In these ways a person can be always advancing, instead of standing still or retrograding. Don't be found around the country store or saloon, winter evenings, sitting on dry-goods boxes and barrels, filling the minds of others, or allowing your own mind to be filled with idle gossip, and often worse than idle gossip, or spend your time over an old dingy checker-board, or a musty pack of cards. Perhaps some of these might do, if the hours hung heavy on our hands; but these things are not in place for an energetic, wide-awake bee-keeper with plenty of unread bee-literature at hand. If you are not enough interested in the study of bees to learn about them winter evenings, preferring the places and things above mentioned, to the study of bees, I can give you no assurance of success; but, on the contrary, shall be obliged to predict only a failure, as all of my knowledge of the business compels me to say

that in this, as in all other pursuits, success comes only to those who make some sacrifices to attain the desired end.



SIXTEEN pages extra this time, and 5000 extra copies, making 15,000 in all.

OWING to the space taken by the Langstroth memorial in this number we are obliged to leave out much of our regular matter.

As will be seen by the honey column elsewhere, honey is selling very low. The trouble is, bee-keepers are rushing their honey too much to the cities, meeting sharp competition.

REPORT of the bee-keepers' Congress at Atlanta will be found in the department of Travels by A. I. R. He reports a good meeting, and believes he has brought home from that convention a good deal of value.

MR. BALDENSPERGER, on page 951, gives an interesting table of the daily average of egg-laying by queens in Palestine. The smallest number was 100 per diem, and the largest 2600. While a queen *can* lay 3000 eggs in a day, she doesn't often do it.

MR. JAMES HEDDON, of Dowagiac, Mich., requests me to say that, owing to a bronchial trouble, caused largely by the "breathing in of the odor of the bees, and their poison," he has been obliged to suspend the publication of his paper, the *Bee-keepers' Quarterly*.

In this issue there is, perhaps, the most complete history of the movable frame in its various stages of development, up to the perfected frame of Langstroth, that was ever published in any one journal or book either. It is a significant fact that leading apiarians in Europe as well as America agree as to the great superiority of the frame given us by the father of American bee-keeping over others that preceded.

FOUR, and perhaps five, bee-journals (I can't quite keep track of the number) have died in America alone during the year just closing. The new year will help to fill up the gap by the arrival, on Jan. 1, of what will be known as *The Pacific Slope Bee Journal*. It is to be published by the Bennett Bee-hive Co., Los Angeles, Cal. Price is to be \$1.00 per year. We wish the new (ar)rival success and a happy new year. It seems to me there ought to be a good field for a bee-journal in the greatest honey section in the world; at all events, the

announcement says the new journal will "be here to stay."

OUR readers will notice by the last paragraph of the Rambler in this issue, that the series of Rambler articles is to be discontinued. I know that these articles have been appreciated, by the many expressions of approval that have come in from time to time. If still desired, perhaps some arrangement may be made whereby they may be again started, or something else in their place from the pen of the Rambler be substituted. I should be glad to receive expressions from our readers.

WHY BEES SPRING-DWINDLE

more in the cellar than outdoors (and I think it is generally conceded that they do) may perhaps be found in the very possible explanation put forth by R. McKnight, in this issue. It has generally been held that an unvarying temperature in the cellar was desirable. But here, perhaps, we have been making a mistake. Bees outdoors are surely not subject to a uniform temperature. With us it varies from 60 above to 10 below zero. A cold spell rarely lasts longer than three weeks. This is a timely and important question, and I hope it will be further discussed.

OUR CHRISTMAS NUMBER.

NEVER before, I think, has it been the lot or privilege of any bee-journal, certainly not of GLEANINGS, to publish in any number such a list of articles from such eminent bee-keepers and writers on bee-lore from all over the world as in this our Christmas issue. Representatives from seven different countries have spoken, and six of them have sounded the praises of Langstroth. Six different bee-editors—two of them ex-editors—have contributed to the Memorial. Besides the usual number of illustrations and other general matter, A. I. R. himself is actually writing on the subject of bees. See his department. There, there! I didn't mean to blow our own horn; but somehow it has been a real pleasure to me to think that we could suitably pay our respects to the memory of Langstroth. It is no little source of gratification that bee-keepers and bee-editors, without regard to country, have been so generous in their responses; and to our friends across the water I desire, in the name of the American bee-keepers, to express especial thanks.

THE CALIFORNIA BEE-RANCH, ON PAGE 941.

I CONFESS this picture brings a host of pleasing recollections to mind. On almost every bee-ranch in California the extracting-house is invariably located on high ground, usually near the roadway. The honey runs from the building through a pipe, into a huge can made of galvanized iron. Some of these cans are large enough to hold a ton or more. This can is also located sufficiently above the driveway, or

some wagon-road, so that the honey may be drawn from this large tank into barrels or cans that stand almost on a level with the bed of an ordinary wagon. In this way the honey is loaded up ready to be taken away without any heavy lifting at all. Where the hives are located on lower ground than the honey-house the combs are frequently run up to the honey-house door, on a suitable car, cart, or wheelbarrow. In the picture mentioned we get a glimpse of the apiary just a little above the honey-house. So you see it is downhill work from the time the honey is taken from the hive until it is ready to load. A. I. R.

DIFFERENCES OF OPINION ON HOFFMAN FRAMES AND HONEY-BOARDS.

FRIEND Hutchinson can't understand how such "bright practical men" as his Medina friends could adopt the Hoffman frames. I suspect it is all because he hasn't tried them—at least, as we have. But, say! I can't see how such a bright practical man as my Flint friend can use and like the old honey-board with all its attendant burr-comb attachments. With our Hoffman frames we are practically free from the trouble. Clearly, here are differences of opinion; but they are, I am sure, honest differences.

I am willing to admit, however, that there are those whose ways of working have been such that they could not like the Hoffman, and for that reason we give our friends the choice of several styles—one reversible, one loose unspaced thick top, and one old-style Langstroth, pure and simple, with top-bar $\frac{3}{8}$ inch wide and $\frac{3}{8}$ inch thick. This last requires a honey-board, which we also sell, for those who want it. We may also, for those who may prefer, add to the list a thick-top frame with some form of metallic spacer—a Stephens or some form of furniture-nail spacer.

I tell you, friends, we can't all like the same things or all see things alike.

FEEDING BACK; WHEN IT DOES AND DOESN'T PAY.

ON page 856 we published an article from Doolittle that seemed to show that feeding back didn't pay. While I think that, as a general rule, it is not profitable, I do not wish to overlook the cases where it apparently is so. In a recent article in the *Progressive Bee-keeper*, it seems to be shown that it can be made a success; but friend Flanagan says, in summing up, "If one has time on his hands, and plenty of drawn sections, . . . and plenty of cheap extracted honey, it may pay; otherwise, *decidedly not*." Bro. Hutchinson, in commenting upon this article in his own paper, says:

But very little profit can be made in "feeding back" unless there are partly finished sections as a foundation. Sections filled with undrawn foundation won't answer. I can't explain why; I simply

know that too large a proportion of extracted honey is required as compared with the amount needed when partly finished sections are used. With plenty of these on hand, and the right kind of bees, feeders, and weather, there is no question but what "feeding back" may be followed with pleasure and profit.

First comes the selection of colonies. Blacks are first choice, with hybrids a close second; next come dark Italians. No great success can be made with light-colored bees. The brood-nest must be contracted to not more than five L. frames, and better results are secured if only three frames are left in the brood-nest; but the strength of the colony is likely to suffer if contraction is carried to this extent and very long continued.

THE WEIGHT OF BEES AND BEE-LOADS; THE PRACTICAL SIDE TO THIS AND OTHER SUCH QUESTIONS.

THE editor of the *Review*, while admitting that it may be interesting in a scientific way to know the exact weight of a bee and the amount of nectar it can carry at a load, fails to see any practical benefit to the honey-producer. If our printed matter were to be confined simply to the methods for converting the labor of our minds and hands into bread and butter, and honey to put on it, some of the best literature of our bee-journals would have to be eliminated.* Man does not live by bread alone, neither should he try to. The practical bearing on some questions is not always at once apparent.

In the case of the bee's weight, or the weight of honey it can carry, there is a practical side. The knowledge of the average bee-load of nectar gives us the key to the solution of the problem of the number of bees necessary to carry a pound of nectar, and the number of trips that have to be made to the fields. Indirectly we learn how many workers a colony should have in order to get the best results from a certain honey-flow. But perhaps friend Hutchinson would ask, "How about the weight of a bee?" In order to know the weight of a bee-load we must know the weight of the bee itself.

Then, too, there have in times past been all sorts of rude guesses as to how many bees there were in a ten-frame colony. Our knowledge is now much more exact; and hence, in discussing practical questions—those that involve bread-and-butter-getting—our comparisons and our statements of bee forces will be more in keeping with the facts, and hence lead to more exact results.

BEE-JOURNALS AND THE SUPPLY BUSINESS.

Various comment has been offered in some of the bee-journals as to whether the *American Bee Journal* is harnessed to the supply-business or under the wing of GLEANINGS now that its editor, Mr. York, has been engaged to manage

*The Langstroth memorial in this issue, for example, does not have much of practical value to the honey-producer, but it does greatly enrich our bee literature.—Ed.

the Chicago office of The A. I. Root Co. So far as the *American Bee Journal* is concerned, it is just as independent as before. It has no connection, pecuniarily or otherwise, with GLEANINGS or its publishers. As Mr. York was an old wheel-horse in the supply-business under Thos. G. Newman & Son, and as the successor of that firm had sold out its business to us, Mr. York, by virtue of his experience and general acquaintance with the territory, was engaged to manage the Chicago branch office; and warehouse rent, insurance, cartage, freight, and stationery, etc., are paid by us. But suppose the publisher of the *American Bee Journal* did open up a supply-office, the same owned and controlled by himself; would that necessarily weaken the influence of his paper? If he were selfish, and inclined to "boom his supplies" irrespective of their merits, through his journal, he would hurt it; but he is not disposed to do any thing of that kind.

Mr. Hutchinson, in writing upon the subject of journals and the supply-business, says that he doesn't know that "there is any thing especially praiseworthy in an editor keeping out of the supply-business;" that "the selling of supplies allows the dealer to publish a journal at a lower price;" that "most of our bee-keeping editors, if not all of them, are pretty fair in allowing competing goods to be described in their journals," and that "there are no bee-journals that can be called 'house organs.'" Friend H. closes up in this way: "I must admit that my views regarding a publisher also being a dealer have been somewhat modified since I have been able to look at the subject from a publisher's standpoint." These statements, coming as they do from one who publishes a journal practically independent from the supply-business, are, to say the least, kind and fair toward those who conduct the two together. Surely it would be no very sad thing if Bro. York should have even a financial interest in the supplies. So far as GLEANINGS is concerned I am sure I have tried to give our competitors a chance in our Trade Notes department to show their goods. Often, too, I have taken the pains to call for articles that rather "sat down" on our goods, and, as some might call them, on my pet notions. A journal, to be a journal at all, must let all sides have a fair hearing.

THE NEW WEED PROCESS OF SHEETING WAX FOR FOUNDATION-MAKING.

THIS is proving to be a great success. Yes, the new machine feeds a continuous sheet of wax, any thickness, from between a set of dies or parallel bars to any desired length—a mile long—without stopping, if need be. In practice, however, the wax is rolled up upon bobbins holding about 25 lbs. These bobbins are then set in a set of bearings (in a vat of warm water), just back of the foundation-machine. The

free end of the sheet is fed into the rolls, and, presto! the whole bobbin of sheeted wax can be reeled off without stopping the mill. In practice, however, again, the foundation-mill reels off a length, and stops where the sheet is cut off. A pressure of the foot applies the power, starts the mill, and more is reeled off, and cut to the desired length. We have our plans laid, however, to run the wax through the mill, the whole 25 lbs., without stopping. An automatic cutting-off device will then in the mean time cut the sheets up into the required lengths.

This is not all. A new and better product is secured. The wax, besides being of an absolutely even thickness, is much more beautiful and transparent. Indeed, some of it, even before it is milled, looks almost as transparent and beautiful as rock candy. Nor is this all—it is tougher and yet more pliable.

It may be well to state to those not familiar with foundation-making that the old process of sheeting involved dipping a strip of wood one or more times into a deep vessel of hot wax. The adhering film, after being dipped in water to cool, was then stripped off. Besides this labor of sheeting in short lengths, there was the labor of starting the sheet into the mill, stopping it to pick off the end from the rolls, and starting again until rolled out. This process had to be gone over again with each sheet.

It will be seen that the new Weed process effects a great saving of labor. There are no more short-length sheets, no back-breaking process of dipping, no starting and stopping the foundation-mills at frequent intervals, and no picking and picking to get the sheet off the roll.

The new machine runs almost alone now; but an attendant stays by to operate, occasionally, the valves to regulate the flow of wax and the cooling process.

Mr. E. B. Weed, formerly of Detroit, later of Brantford, Can., and now of Medina, is the inventor. Patents are now pending, and I sincerely hope Mr. W. will be rewarded for his pains. For two or three years he has been working and experimenting, with much discouragement. Every one gave it up but he and Holtermann. They knew he was on the right track, but couldn't make a practical success of it. They finally succeeded in overcoming the last obstacle. But the machine was not a success; it was too light, and too every thing in spots. Our Mr. Washburn, the man who first made the roller comb-mills, at once appreciated the weaknesses of the machine Mr. Weed brought from Canada. To make a long story short, drawings were made, patterns gotten out, and in a short time a new and stronger machine was built, with results as above stated.

OUR HOMES.

He shall call upon me, and I will answer him: I will be with him in trouble.—PSALM 91:15.

Thanksgiving day was bright and warm. It afforded an excellent opportunity for some outdoor work that very much needed to be done. Let me explain. Three years ago I described our little greenhouse across the way. I have told you in detail of the strange blundering way in which I made the discovery that greenhouses could be warmed automatically by means of exhaust steam. In my first experiments I was so much afraid the thing would not work that I picked up pieces of old rusty iron pipe, hastily put them together, and pushed them up through the tiles. Somewhat to my surprise, and much to my delight, the thing worked beautifully. Summer and winter, month after month and year after year, the hot water went its rounds, giving out its heat overhead in the greenhouse, and then going back to the point of starting, to be warmed up again. Last winter, however, while I was in Florida the circulation gradually slackened up, and during the most severe weather the pipes cooled down in spite of every thing that Ernest and the boys could do. They were cold when it was most important that they should be hot.

It was so late in the season when I returned, that we managed to get along with our stuff. When I went at it this fall to straighten the thing out, the difficulty seemed to be somewhat obscure; so the matter was neglected until Thanksgiving day. On that day, with the help of Frank, one of my faithful boys, I decided to *locate* the mischief, at any rate. Instead of being in the greenhouse, it proved to be somewhere in the *underground* line of pipe that the obstruction lay. Now, this line of pipe is not only about two feet under ground, but it also runs through a six-inch tile. We could dig down to the tile, but we could not lift out a length without breaking it, because the iron pipe is in the way. Frank and I made excavations in different places on Thanksgiving afternoon, but did not succeed in locating the trouble at any exact point.

The little pipe I used to make my first experiment with was only $\frac{3}{4}$ inch in diameter; but it worked so nicely there that it had stood doing its work all these years. One thing I decided on Thanksgiving night was that I would nevermore use *old* pipe to put under ground; and I also would never *again* be guilty of using pipe as *small* as $\frac{3}{4}$ inch. One inch is small enough and cheap enough; but $1\frac{1}{4}$ would be better.

On Monday morning I was to go to Atlanta, so there were only two days left—Friday and Saturday—and these two days the last of November were very apt to be stormy and cold. During the night I thought over all the things that were to be done the next day. First, these hot-water pipes were to be fixed before the weather became any colder. Some additional radiators were to be put in at the house also. Some more copy was to be furnished for GLEANINGS, and this was to be out so it could reach the friends around Atlanta, before the convention of Dec. 4 and 5. Other matters were crowding in various parts of the factory.

Friday morning proved to be all that could be wished, so far as *weather* was concerned, and I fairly trembled to think of the number of things I was to look after before I took my trip to the South. By some of my own bungling, there was no meat ready for breakfast; and when a boy went to the meat-market he had to wait nearly half an hour for them to open up shop. The boy who makes it a business to feed

the horses so as to have them ready to hitch up when the whistle blows, also failed to come around. Perhaps it was because it was just after Thanksgiving. The assistant engineer had hurt his finger a day or two before, and the engineer wanted Harold (the young plumber whom I have mentioned before) to *fire* for him. He thought no one else would answer.

Breakfast was finally ready, and had to be eaten just as my men ought to have been getting their orders for the day. It was hard work to obey the doctor's orders to take plenty of *time* for my meals. Then it was a task once more to get the family together after a late breakfast, for morning prayers. Satan whispered that, under existing circumstances, family prayers would better be omitted for just once. As I have never listened to Satan, however, especially when I wanted advice in *such* matters, his suggestion did not amount to very much.

When I got over to the factory, somebody had promised that Harold should do some plumbing for a neighbor; then another man who was hurrying *his* job of piping could not be waited on because half a carload of New Queen potatoes had been hastily piled in the cellar on top of the iron pipes he was waiting for.

Frank and Fred had got the iron pipes apart, and were pushing a wire down through them as far as it could go, to start the accumulations of rust and scale; but the water could not be made to go through, even under pressure. The boys were doing the best they could; but they needed more pressure, and every thing seemed to need more *brains* all around—perhaps brains of mature experience. I called a man who had done such work, and directed him to attach a Whitman fountain pump to the end of the iron pipe, and *force* the water through. Somebody had borrowed the pump. When it was hunted up, the valves would not work. I finally decided that we should have to take a brand-new \$6.00 pump from the stock in the store out there into the dirt and water. But there were not any *new* pumps—the stock had been sold out. The clerks told me they had another kind that was better, but it could not be attached to our iron piping—that is, without too much time and expense.

At this juncture the plumbers over at the house were hindered in their job by lack of some special fittings. The train that was to bring them did not bring any thing. The printers were wanting my last Special Notices, so the form could go to press. I was already overburdened with cares; the beautiful warm forenoon was passing away, and my heart had not been cheered by *success*—that is, very much success—in *any* direction. The helpers were all doing their duty; but wherever I was boss it devolved upon me to say what should be done at this unexpected crisis.

Surely there were burdens enough that forenoon for Thanksgiving day. But it seemed that a still harder one to bear was coming. One whom I had been instrumental in bringing to Christ Jesus was backsliding. The backsliding had got to a point where I must stop right then and there, and decide what was to be done. From what I have written in these Home Papers, and from what you know of me, very likely you will wonder where my faith and trust in an overruling Power were at such a time. Well, I am afraid I had been too busy to ever think of asking for God's help. I am afraid that I had a sort of idea, when I got up in the morning, that I could manage without his help. You see, I am older than I used to be, and am feeling quite strong and well, and I

have had "lots of experiences." But on this particular morning *all* my plans and projects seemed to be failures. I had undertaken things I could not get through with. Saddest of all, I had undertaken to lift a soul out of the miry clay on to the clean strong rock of a faith in Christ Jesus, and *he* was a failure too.

This last burden—no, it did not break me down, but it brought me to my senses. A very earnest and fervent "Lord, help!" welled up from my heart; but I confess that it was without very much faith. Then when I looked at the boys, with their muddy hands and clothing, so willing and patient in doing any thing I wanted done, another "Lord, help!" welled up from my heart; but that, too, I am afraid, was without very much faith. Then I remembered the surgical operation at Battle Creek, and that little couplet from the hymn,

I am weak, but thou art mighty.

Yes, I felt myself *decidedly* weak. I let some of the things go, and walked over to the boys. In a few minutes they had met with success on one of the lines of pipe. The hard water from the windmill tank, that had been coursing through even the galvanized-iron tubing for many months, had deposited an incrustation of chemicals or lime at the lowest point. With a heavy wire and a strong force of water we succeeded in rasping the limy deposit loose so it could be washed out. The missing fittings had been found at one of the shops up town, so the plumbers at the house could go on; while Mr. Warner, with a big stout German and a boy to help, had moved the potatoes, and our customer had his iron pipe.

I began to think that one little earnest fervent prayer was moving things mightily; but an interview with the one who had got back into the miry clay made me feel that it is a far greater and oftentimes more *wearing* and *discouraging* work to try to save a sinner from the error of his ways than to get the obstructions out of a crooked iron pipe that is two feet under ground, inside of stone tiles, and running under various beds of garden-plants besides. Müller once said that it is a much easier matter to get *money* by praying than to *save souls* by praying—especially where Satan had got a strong hold on the lost one.

The battle was not won yet, by any means. More earnest prayer was needed; more lessons were to be learned in regard to my need of divine help. I thanked God for the success we had made, acknowledged my own feeble helplessness, and plead again with perhaps greater faith. It looked for a time as if our pipes would have to be all buried up again until I could get back from Atlanta, without having accomplished any thing. I could not bear the thought of this; and yet if I should go to tearing up things much more than I had already done, nobody could put them back in shape in the brief time that was left. The weather-telegram announced a coming storm and colder weather. We had narrowed the stoppage in the pipes down to the lowest point in the piping, and it was not more than 20 feet in length; but the pipe passed right under three or four different beds of plants. The boys had pushed wires in from both ways, and had given up. I asked them to try it once more. Pretty soon a little muddy water came out; then still more; and finally a more slender wire was crowded clear up to the elbow, even though the pipe was crooked. The water came faster, and more muddy, and finally out it shot under full head, sending the pure sparkling liquid out many feet, carrying with it, now and then, lumps of sediment and deposit. The pipe was *clean*. It is now all covered up, and the greenhouse is

warm. My Thoroughbred potatoes and other plants are safe.

The spiritual work, however, that I had been trying to do, and which was, of course, of *many times* more moment than the water-pipes, did not prosper so well. Satan was too much for me. His victim had turned back on his best friends. He declared they were all trying to "beat him," and that they had a *spite* against him. Dear friends, have you not noticed again and again how the *real* sinner or the *real* criminal insists that, while *he* is honest and true, everybody else is vicious and bad? He will have it that all good people are trying to injure him; that his best friends have a "spite" against him.

Slowly and sorrowfully I was obliged to give it up. When I thought of the way in which business had been finally pushed along through the day, I felt to "rejoice and be glad;" but when I thought of this other, I felt sick at heart. I felt humbled—yes, a good deal humbled. Perhaps my sad and sorrowful tones may have had some influence on what I said. I spoke very kindly and gently, but I talked very plainly for all that. There was more inward praying that came from a very humble, and, I fear, a good deal discouraged heart. What do you think happened? Why, before I went to bed that night I was cheered by hearing a full and humble acknowledgement of the fault, accompanied by restitution *in full*. It was like the muddy deposit in the crooked pipe. It came little by little; and when the full, frank, and clear confession came out, accepting all the blame himself, and exonerating all of his friends, then I could see the light of the Savior's love shining down once more into the darkened soul—not darkened now, thank God, but full of light and peace, for the dark evil thoughts had been washed out. Satan had lost his hold. The prince of darkness had been banished entirely, and it seemed as if I could almost hear the Master say, "Go thy way, and sin no more."

But the whole matter was not to be allowed to be dropped just then and there. There is a part of that wonderful prayer that reads, "Lead me not into temptation, but deliver me from evil;" and before I started on my trip to Atlanta, several good strong posts of advance guard were put up to keep temptation away; and careful, faithful sentinels have been stationed, not only to guard against any surprise at some future time, but to *cut off*, so far as may be, the avenues where evil may be most likely to again come in.



ON THE WAY TO ATLANTA.

Does tobacco make a man selfish? As we got aboard for Cincinnati the cars were so full that one of our party remarked we had better pay a dollar more and take a chair car, where there was plenty of room; but we concluded to look a little first. I saw a man filling a seat with his valises, overcoat, umbrella, etc., and politely inquired if he could not let me sit with him.

"Why, I *suppose* so; but why don't you sit with some one else? there are plenty more places."

As I always dislike being where I am not wanted, even if I have a right there, I turned to a man across the aisle: "Why, certainly, and you are quite welcome," was the pleasant and

ready response; so I sat down. It was soon evident, however, that No. 1 did not intend to occupy the seat *himself* at all; for as soon as he had filled the seat he went into the smoking-car. Now, I always prefer a seat next to the window, and I therefore very soon moved the baggage, etc., to half of the unoccupied seat. In due time the owner of the stuff returned. I said to him:

"If you prefer a seat next the window, I will take the other; as you took the seat first, you surely should have first choice."

He looked at me a moment, then, evidently having no more of a fancy to sit by me than I had to sit by him (perfumed with his tobacco smoke as he was) he remarked, "I reckon I had better go back and ride in the smoker," and I saw no more of him until he came for his baggage when at his destination. I afterward noticed vacant seats all over the car. People usually kept out of them because they contained baggage, while the owner paid for one seat and used two. Well, if the railroad folks prefer to run a smoking-car for accommodation, it is all right, *certainly*; but I wonder if it has occurred to them that, while they do so much gratuitously for *tobacco-users*, they might certainly do a little in the same line for those who *ride wheels*. Do more people use tobacco than ride wheels? We shall soon see. Which is of more real importance to a man—his wheel or his—"smoke"?*

As we get down into Georgia and into the region around Atlanta I notice the ground on the hillside is almost all terraced; or the rows of corn, cotton, sugar-cane, etc., are planted so the furrows all run around the hills, exactly on the plan given in our tomato-book.

It is interesting to note that friend Day's plan is being carried out so generally. Where the best crops are grown, the whole plan in detail is fully carried out; and when it is so done, there is next to no washing, and no gully-ing at all.

Our trip to Atlanta was a very pleasant one. The railroad officials were pleasant and obliging; and although the weather was quite severe, even through the Southern States, we suffered no inconvenience at all in traveling. By taking some rations of beefsteak along, nicely cooked by Mrs. Root, I managed to have my meals regularly, and of the right kind. The hot water was easily managed by taking along a tin canteen. This, when filled with good water, was kept hot on the steam-pipes; or where there was a hot-water boiler on the car the porter kindly permitted me to place my canteen where it would keep hot and out of his way. I find it better to speak to the porter before taking liberties with his heating-apparatus, for he does not like to have passengers meddling with his department without permission. A little explanation and courtesy always secured all the privileges that I needed in this line.

As I have several times described the country between Cincinnati and Nashville, I need not go over it again. You will notice by the map that at Nashville we start out eastward toward

Chattanooga, and thence on toward Atlanta. Theride through the mountains affords a grand study to any one who is a lover of nature. It is always exceedingly interesting to me to look over the problems that were surmounted in building a railroad through such mountainous country. Usually they follow streams; or, as they would say in California, up one canyon, to the summit, and down another on the opposite side. Through Tennessee and Georgia a good deal of the road had to be cut *through* the hills more or less. The road curves around the hillside, first on the side of one hill then on the other, occasionally getting through by cuts so deep you can hardly see the top as you look out of the car window; and where the hills are very high, and the expense will warrant it, a tunnel is cut right straight through. The scene is occasionally varied by beautiful fertile valleys, along the side of clear rivers. A good deal of the land is, of course, unreclaimed and unused. The valleys, however, are mostly under pretty good cultivation, and in many places the ground is cleared and under cultivation, up almost to the summits of some of the mountains, on hillsides where you would think it was almost impossible to do any farming profitably. Some of this high land, however, is very valuable, so I am told, for certain crops.

Apples of great beauty, and of about the finest coloring I ever saw anywhere, are raised all through Georgia. At one station Mr. Calvert informed me they sold ten large beautiful apples for only a nickel; and the whole carload of people seemed to be eating apples in a way that I hope did them all good—at least, it did me good to look on; but I had some fears that at least a part of the crowd could not stand so many of them at all hours of the day; and before we got through, even Mr. Calvert, with his strong and rugged constitution, was obliged to admit that it would have been better had he eaten fewer, or taken them at regular meal-time.

Through Georgia they prepare the ground and sow oats all through the month of December. They were not doing it when we made our trip, however, for the ground was frozen hard, even in the middle of a sunshiny day. One of the passengers informed me that oats were very seldom injured during average winters. I made inquiries in regard to winter oats. He said they had tried them more or less, but the common variety seemed to suit their locality best. The prevailing crop, however seemed to be cotton; and I am told they raise cotton year after year right on the same ground, using little or no fertilizer except cotton-seed meal and the stalks, etc., left after the cotton. The cotton-fields, as a rule, are remarkably clean, and free from weeds; but judging from the size of the stalks, a good deal of the farming, like that here in the North, is not by any means what we would call high-pressure farming.

Perhaps the greatest foe to agriculture, especially on the hilly or uneven ground, is the washing and gully-ing; and I was greatly pleased to note that, all through the South, the remedy proposed in the back part of our tomato-book is the one in common vogue—running the furrows around the hills instead of straight across the fields. This is some trouble; but if it is done right, it seems to be a perfect remedy for washing. The Department of Agriculture, Washington, has put out a very interesting bulletin (No. 20), entitled "Washing Soils; how to Prevent and Reclaim them." The teaching is almost in line with that given by friend Day.

Atlanta is a very beautiful city of about 100,000 inhabitants. The streets are filled with

*The following newspaper clipping comes in very well right here:

The bicycle has proven a beneficent apostle for reform in more ways than one. If the assertion of the United States *Tobacco Journal* may be accepted, which declares that the bicycle has caused a reduction for the last year of seven hundred millions in the consumption of cigars, the reason assigned being that men seldom smoke while riding a wheel. It has doubtless caused, also, a large falling-off in doctor's fees, and left the patient who rode it in far better condition than if he had swallowed the whole contents of an ordinary drugstore.

people; large manufactories of different kinds are running in full blast, presenting a scene of activity and industry much like our progressive and growing northern cities. We found accommodation at Hotel Jackson at 75 cts. per day for room and bed, as given on page 901.

This includes electric lights and steam radiators, even clear up into the fifth story, where we found accommodations. An electric elevator is running constantly to carry people and baggage up and down.

This was a special arrangement (75 cts. a day), however, made for bee-keepers, with the understanding that they "double up." This means that you occupy a bed in a room where there are several bees. If the house is crowded you are to share your bed with somebody else. Our room contained three beds, and part of the time six occupants. Of course, they were not all bee-keepers, but we managed to get acquainted so that we had a very pleasant and social time. Meals are given on the European plan, and you can have a plate of toast for five cents, and a cup of tea or coffee for five cents each, besides various other five-cent articles, if you wish to be economical. You can also order a meal that will cost a dollar or more, if you feel inclined that way; or you can economize by carrying a lunch-basket, and sit down at a table, and order only a cup of coffee. I confess I like this plan very much indeed. For 40 cents I got a good sirloin steak, nicely cooked, with very little delay; and with the zwieback that I brought with me from home I had just what I wanted, and no more, at regular hours, without a bit of trouble. There are various places in Atlanta where you can get very good meals for 25 cents; a fair one for 15 cents; and there are even places where you are invited to come in and try their *ten cent* meals. We did not try any of the latter, but were assured that many kinds of good wholesome food could be procured, nicely cooked, at this low figure. I have taken this pains to particularize, because reports have been circulated that one could not get along at the exposition without paying 50 cents or a dollar for meals.

While I am on the subject, perhaps I should mention that we had a very nice dinner on the exposition grounds, for 50 cents each, at the Georgia barbecue. My first question was, whether I could get a dinner all of meat if I wanted to. The waiter rather smiled at my query, and said he guessed they could hit my wants to a dot. Then he brought in a huge platter of mutton, roasted barbecue fashion, that made me feel at once that I should not go hungry. After dinner I was invited to see how they cooked things at a barbecue. Several long trenches were made along a side-hill—that is, they were on a slant. These were filled with firewood, which was kept burning until the earth, bottom, and sides, were as hot as a brick oven. Then the various animals were slaughtered, cut into quarters or huge chunks, and through each quarter or chunk two iron rods were thrust, these rods reaching from one side of the pit to the other. Before the meat was put on, however, the fuel was all removed, except a bed of glowing coals in the bottom. The meat is then turned over on the iron rods, and given sufficient time to become thoroughly cooked all through. I can hardly explain why; but meat cooked in this manner, close to the hot earth, has a peculiar rich flavor. With the meat are served potatoes and other vegetables, and a sort of soup made of tomatoes, green corn, and other vegetables. If I am correct, the food is all cooked in these earth trenches. It makes one think of the Bible stories of olden time, where hundreds or thousands of domestic

animals were roasted at a single feast; and the barbecue idea certainly seems calculated to encourage the consumption of more meat and less of other things.

Harper's Weekly describes the stew, or soup, by the following graphic account of how it is made, from one of the colored cooks:

"Well, yer see, yer jest takes de meat, de hog's haid, an' de libbers, an' all sorts er little nice parts; an' yer chops it up wid corn an' permattuses, an' injuns an' green peppers, an' yer stews an' stews till hit all gits erlike, an' yer kain't tell what hit's made uv."

They add:

"It is a necessary adjunct of the dinner; and when it is made sufficiently hot by a sufficient quantity of pungent peppers, it is indeed a rare appetizer."

THE ATLANTA BEE-KEEPERS' CONGRESS.

The gathering of bee-keepers was not large, probably owing to the severe weather; but what we lacked in numbers we made up in quality, for we had some of the best honey-producers present to be found in America, and perhaps some of the best and most successful on the face of the earth. I was much gratified to meet so many of the good friends who entertained me so well while in Florida last winter—W. S. Hart, O. O. Poppleton, A. F. Brown, and Wm. P. Wilkinson. Mrs. Harrison came in the second day; and our veteran friend, Mr. C. VanDeusen, of Sprout Brook, N. Y. (proprietor of the wired flat-bottom comb foundation), was present during the whole session. Friend V. is now 81 years old, and came to the convention quite unattended. He looks quite hale and hearty, and one would hardly suppose by his looks that he was really so old. Like myself, he ordered *hot water* instead of either tea or coffee; and perhaps this may give us a suggestion as to the reason why he holds out so well. I noticed, also, that both himself and Mrs. Harrison were choosing mostly the lean-meat diet as I did. Our friend J. D. Fooshe and wife were also in attendance. Friend F. is getting to be a veteran in queen-rearing, as you may remember from his advertisements.* Dr. J. P. H. Brown, also one of the old wheel-horses in bee culture, seemed to be the prime mover of the whole affair.

Discussion was opened by a paper from Mr. Charles Dadant, in regard to why bees swarm. Friend Hart told us he had managed his large apiary for several years past with so little annoyance from natural swarming that it did not amount to more than three or four swarms from a hundred colonies on the average. His principal remedy (together with the proper shade from the great scuppernon grapevines), is to take the honey out of their way, and give both queen and bees plenty of room. You will remember he uses a large solar evaporator for ripening his honey. This enables him to remove it when only a very little of it is capped over.

Some discussion resulted as to whether honey ripened by the sun was fully equal to that ripened in the hives. Friend Hart gave us pretty conclusive evidence that his product was certainly not *very* much behind that of other bee-keepers. Friend Poppleton thought the same result could be accomplished by hav-

*Friend Fooshe has a contract to furnish Buist, the great seedman, with 22,000 lbs. of seven-top turnip seed. The plants are now growing on 32 acres; and when they come into bloom all at once it ought to make a boom for a pretty large apiary, and then we can tell what honey is like, gathered from seven-top turnip. Providence permitting, I may visit his place when the honey-yield is at its height.

ing large hives, or the "Long Idea," as it has often been called, of spreading combs out horizontally, so as to give the bees ample room. This would prevent the necessity of such frequent extracting.

Considerable discussion followed in regard to the nameless bee-disease, or bee-paralysis. Friend Poppleton thought he had lost tons of honey by the damage resulting from that disease. The general testimony seemed to be that no remedy yet proposed hit all cases. Quite a number thought it was worse with Italians than with the common black bees. I asked if we had a queen-breeder in America who could furnish us full-blooded black queens at a low price.

Pretty strong evidence was brought forward to show that neither bee-paralysis nor foul brood is ever carried from one place to another by buying and selling queens. Of course, if the feed sent with the queen contains honey from foul-broody hives, it might spread the contagion; but the queen herself, and the attendant bees, with ordinary care, need never spread either of these diseases.

A bee-keeper near Atlanta, Ga., reported 700 lbs. of honey from cotton, during one season, from 30 colonies; but the cotton-plant yields honey only occasionally.

WAXING BARRELS, ETC.

On page 899 we read, "A barrel or keg properly made of the right kind of wood needs no waxing." I confess I felt uneasy when I first saw it. The question came up in our congress, and both Mr. Hart and Mr. Poppleton, and all the Florida bee-keepers, declare that every barrel must be well waxed or paraffined. Friend Poppleton suggested that honey that ordinarily soaks into the wood would alone pay the expense of waxing. The waxing process is the quickest method of ascertaining beyond question whether the barrel is absolutely tight. Only about a pound of paraffine, costing 15 cts., is required if the waxing is properly done. First, the barrel must be not only thoroughly seasoned, but it must be made hot, either in the sun or by some method of artificial heat. When hot, the hoops should be driven down tight, and fastened. To prevent wax sticking on the outside, friend Hart puts the plug in one of the heads; and, before pouring in the wax, the outside of the head is dampened to prevent sticking. Pour in a sufficient quantity of melted wax or paraffine, and have it hot enough so it will not be cooled off very much in the process. As soon as you get the required quantity into the barrel drive in your plug. The hot wax will expand the air in the barrel so as to make a tremendous pressure; and when you come to roll the barrel over, and twirl it around so as to cover the whole inside, if there is any crack or cranny anywhere the wax will be forced out at this spot. If your barrel is hot enough and dry enough, the wax will never cleave off on the inside. In Florida there is a minute insect that makes small pin-holes in barrels and other utensils; and the only protection from leakage is waxing just before the barrel is used. Cypress wood makes a more perfect and a lighter barrel than any other material. Barrels made of oak, unless thoroughly waxed, will give the honey a taint that may spoil its value, or cut it down considerably. Let us remember that our Florida friends have had much experience in all these matters, for they marketed over 40 tons of honey in 1894, and all from one comparatively small locality.

THROWING OUT THE BROOD WHILE EXTRACTING.

Unless you have a very careful operator a

good deal of the brood is likely to be thrown out with the honey; but this is much more likely to be the case where the small extractors, made only for the L. frame, are used. Large extractors, like the reversible Cowan, and others, are much less liable to do this; but Mr. Poppleton thinks he could throw out the thickest and most thoroughly ripened honey with one of these large extractors, without disturbing the brood at all.

Our irrepresible friend Danzenbaker was present, of course; and it is really worth something to listen to his animated talk about his new hive, and especially his one-pound section, made 5 inches tall, $3\frac{3}{4}$ wide by $1\frac{1}{2}$ thick. This section has been used for several years past by Capt. J. E. Hetherington. Friend Danzenbaker has a long string of arguments to prove the great advantages of this section over the square one. The principal one of these points is, however, to my mind, that, being taller and thinner, it permits of placing 32 sections on top of the hive, where with the ordinary one-pound section we have room for only 24. He claims that the bees enter them more readily because they are deeper up and down, which may be true; and very likely (as there is more surface for attaching it to the wood), it may be a little stronger for bearing shipment. The idea, however, that purchasers at large will pay more for honey in sections of this shape seems to me a little strange, aside from the fact that it is something new and a little different from the ordinary style. It may be, however, that a section of honey something the shape of a testament or hymn-book looks a little better to the general eye than one exactly square. Permit me to say to friend Danzenbaker, and hundreds of others who are getting out new inventions, and especially those who have something new to offer every New Year's day (or oftener still), that it will cost the bee-keepers of the world something like a million of dollars to change the dimensions of their frames and section boxes in common use. At one time in my life I was persuaded that the Langstroth frame was not the best-shaped one, I accordingly adopted what I called the "Standard frame," and urged everybody to go into it, changing their hives and fixtures all over. At that time I had influence enough to induce hundreds of bee-keepers to commence changing their hives. After three or four years, however, I was so sure that I had made a mistake I went back again to the old established Langstroth, and tried to drag all the rest, who had been foolish enough to follow me, back to where we were in the first place. The Standard frame is now almost unknown, and we are fast getting to a point where the L. frame is the principal one in use everywhere—north, east, south, and west. If a general change is ever made, it must, in my opinion, be for *better* reasons than any that have as yet been brought forward.

HONEY THAT NEVER CANDIES.

Several bee-keepers from the vicinity of Atlanta astonished us by declaring that their honey *never* candied. One man said he had never seen any candied honey until he saw specimens on the table before the convention. On being interviewed we found his honey was secured from various sources. Now, it is very peculiar that honey from a certain locality never candies, no matter what the bees work on. There were others present, living not very far away, who mentioned having certain kinds of honey that would candy hard and solid, even when stored in sections, and capped over.

The general account of my visit to the exposition grounds will be given in our next issue.

Special Notices in the Line of Gardening, Etc.

By A. I. Root.

WANTED, SEED OF THE CHAPMAN HONEY-PLANT.

Can any of our readers furnish us some of the above? Every little while it is called for; but we are out, and do not know where to get more. If you have any to offer, please mail us a sample, tell us how much you have, and what you want for it.

OUR NEW SEED CATALOG FOR 1896.

All those who would like our Seed and Plant Catalog mailed them regularly whenever we get out a new one will please tell us so on a postal card, or please be careful to mention it whenever you are writing us on any other matter. We are just now making out a new list of the names of our customers in this department.

SHELLBARK HICKORYNUTS.

Medina County is not only celebrated for its maple-trees, but for its "shellbark" hickories as well. This season there is a great quantity of fine nuts. We have just secured a nice lot which we can furnish at the following very low prices: Quart, 5c; peck, 25c; half bushel, 40c; bushel, 75c. You can have these included with your express and freight order at the above figures. Sample by mail 5c, if you would like to see them before ordering. In localities where they do not grow they are often quite a treat to the children.

A CHRISTMAS PRESENT FOR YOUR WIFE.

A beautiful cloth-bound book—title, "Domestic Economy"—written by a doctor, and one who has made the matter a life-study. We offer it for only 50 cts., although the regular price of the book is \$1.00. If wanted by mail, send 8 cts. more for postage. Make your wife a present of one of these books, and it will enable her during the coming year to save many times its cost. It is a book that will be read clear through by almost everybody who gets hold of it; and you will be surprised on almost every page because you never thought of such simple, easy, short cuts for doing all sorts of things around the home.

GOOD BOOKS FOR A VERY LITTLE MONEY. []

[] We find we have in stock several hundred copies of two of the five-cent Sunday-school books that we have sold so extensively in years past. By some means these got dropped from our price list, and have not been advertised for some time. One of the books is called "Silver Keys." It is an excellent story with good wholesome morals. When first brought out the book sold for \$1.00. We now offer it for 5 cts., postpaid, until the stock is exhausted. The other one, Bunyan's Pilgrim's Progress, is very fully illustrated, and ought to be worth many times the insignificant cost (5 cts.) in any family. Many of our older readers have these books; but we think there are children now in almost every household who will be greatly benefited as well as interested in getting one of them for a Christmas present. Send right off now and we will try hard to mail it to you in ample time to be tucked in a little stocking.

HEALTH FOODS.

In our last issue I suggested that zwieback came the nearest to pure beef of any of the pure health foods I had tried. I find, however, that wheat-germ grits answer about as well when thoroughly cooked. Another recommendation, it costs only 5 cts. per lb., or 10 cts. for a 2-lb. package. Now, many of the friends have found it expensive to get these health foods, either by mail or express, and very few of them care to buy enough to order by freight, unless, indeed, it is to go along with other goods. There is already in the market an article recommended by our Dr. Lewis, and which seems to agree with me as well as the zwieback or any thing else; and that is Pettijohn's American breakfast food. You want to get the packages labeled "Pettijohn's Best." A 2-lb. package costs only 12 cts. at retail. One thing to recommend this article is, that it is already in the general market; and I believe it is kept on sale by grocers pretty generally everywhere. If you don't find it at your home grocery, when you are ordering other goods of us you can include it at

the above price. You can doubtless get wholesale prices by addressing the Eli Pettijohn Cereal Co., Minneapolis, Minn.

CELERY-PLANTS FOR THE NORTHERN FRIENDS.

We have some very nice plants now, ready to take up, of White Plume, Self-blanching, Golden Heart, and Giant Pascal. Good and strong plants, put out now in Florida and other southern localities, make nice celery, which will be ready just the time when they bring the most money in northern cities. Last winter Mr. Andrew Fooshe, of Titusville, Fla., sent five boxes of celery to Philadelphia, which brought \$12.00. See p. 229, last year. Prices of plants, 5 cts. for 10; 40 cts. per 100. If wanted by mail, add 5 cts. for 10 or 25 cts. for 100, for postage.

THAT 86-LB. COLORADO POTATO.

Quite a good many people have been undecided as to whether the above was a fake or a reality. The engraving appeared in the *Scientific American* a few weeks ago, given as a fact. Everybody acquainted with potato-growing should recognize the impossibility of the whole thing, notwithstanding the photo. We investigated, and received a pleasant letter from J. B. Swan, of Loveland, Col., explaining that it was a trick in photography. He did it only as a joke, to call attention to the advertisement of his seed potatoes. He said the *Scientific American* gave the picture on its own responsibility; in its issue the week after, they showed up the hoax; but the admission was not nearly as prominent as the first notice with its startling picture.

A PREMIUM WORTH \$1.50, AND GLEANINGS ONE YEAR, WORTH \$1.00, BOTH TOGETHER FOR ONLY \$1.00 IN MONEY.

The conditions of the above great offer are, briefly, these: To any person who is already a subscriber to GLEANINGS who will send it one year to some locality or some family that has not been taking it; or, in other words, any one who sends us a *new name*, together with \$1.00, can have, postpaid, 1 lb. of Maule's new Thoroughbred potato. This potato is not offered for sale anywhere to my knowledge, for less than \$1.50 per lb. We do this in order to get our journal introduced where it has never been taken before; and we are enabled to do it from the fact that we have purchased (at large expense) from Wm. Henry Maule ten barrels of this wonderful new early potato. For particulars in regard to the potato, see our Potato Circular, which we will mail to you on application. If you do not want to take the trouble to get a new name for GLEANINGS, make some friend or relative a present of it for one year, and send us the dollar. We will mail the potatoes right along as fast as the names are received—or, at least, until we have some evidence that there is danger of freezing in the mails. So far we have not lost a single pound. Mail matter is now so carefully cared for that there is very little chance of freezing unless you let them freeze while they are being brought home from the postoffice. We think the above makes the matter so plain that there can be no further mistakes or misunderstandings. The new potato is sent as a premium to any present subscriber for getting us a new name, and sending us the \$1.00. Please notice, we do not offer the potatoes for sale at any price. We expect to plant all that is left, ourselves. Those who have hot-beds and greenhouses can probably make no better use of their space under glass than to start these new potatoes now. We have some growing nicely that are six or eight inches high, in our greenhouse across the road from where I am writing. There is no easier plant to grow under glass, in the world, than the potato, providing you keep the frost from biting the foliage; and even if the tops are nipped it sets them back only a little, for they will start right up again. While they are worth \$1.50 per lb., you can make money by growing them in flower pots or boxes, in the window. And here is work for the women-folks as well as for the men. The potato is a very handsome window-plant, and just now there is money in it. See?

GLEANINGS comes regularly. I know I should miss it very much if it were not on time. Long may the Home of the Honey-bee prosper. Keep on; don't stop the hive question. J. H. GOE.
Mossy Rock, Wash.

Kind Words From Our Customers.

Potatoes received. Many thanks. Long live A. I. Root, son, and son-in law. E. B. RIFE.
 Circleville, O., Nov. 15.

GLEANINGS has saved us many times its price. We should not know how to get along without it. The honey crop is exceedingly poor in the country. The fires ran over large tracts of our neighborhood last year. Fireweed followed this year, and that was all that helped us out. MRS. S. WILBUR FREY.
 Plumville, Mich.

I still "think the world" of GLEANINGS. Long may it and its editor live and sow good seeds. We, your Christian readers, are bound by stronger than ordinary bonds to you. Long live the "admirable society." It does good to belong to it, even if only to admire others for their commendable qualities. A. MORTAZ.
 Utica, Ill., Oct. 17.

THAT CRANE SMOKER, AND WHAT IT WILL DO.

I received the Crane smoker there has been so much talk about, and I must say it is the best I ever saw. We need no better; for with it we can smoke every bee clear out of the hive, then smoke them in again. I know this can be done, for I have done it. Cumminsville, Neb. JAS. PRATT.

AN EXCELLENT SERMON CONDENSED INTO A FEW SHORT WORDS.

Dear Brother Root:—We heard such a good sermon last Sunday that I am constrained to pass it on, where it will do more good—I. COR. 10:31: "Whatsoever ye do, do all to the glory of God." The Christian motive of life, man's chief end, is to glorify God, since we are not our own, but we have been bought with a price. We belong to God, and all that we have comes from him—our time, money, health, opportunities, and all that we have, are lent to us from the Lord to be used for him and for his honor and his glory. But then we must not let this service to him be a tax or an unpleasant duty. We must not be satisfied with giving to him one-seventh of our time nor one-tenth of our property, but dedicate, consecrate the whole to him; and if we have the love to him that we owe, giving the whole to him will be a delight, just as Jacob served seven years for Rachel, and it "seemed but a few days;" and then since God is our Father, and such a bountiful giver, we will rejoice in his service, since we are assured that all things work together for good to them that love him; therefore we will account it always a pleasure to "rejoice in the Lord." Rejoice because we are the sons of such a great, glorious, almighty king.

Now, brother Root, I do not wish to interfere with a single one of your Home Talks. I send you this as only so much matter which you can weave in or use as you see best; for I take more pleasure in reading Myself and Neighbors than all the rest.

Hammononton, N. J., Nov. 13. A. H. VANDOREN.

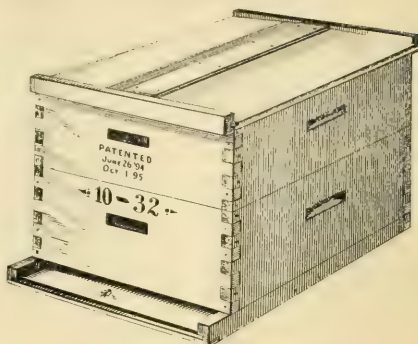


This Steel Fence Post is superior to any other on the market. It is driven into the ground with a wooden maul, and will neither Rot, Rust, nor Burn. It is adapted to plain, barb, or any of the patent fences. Ten posts can be driven in the time it takes to dig one hole for wooden post. For Catalogue and prices, address

INTERNATIONAL STEEL POST CO.,
 710 Chestnut Street, St. Louis, Mo.

Please mention this paper.

Something New!



A Comb-Honey Hive

containing 10 closed-end standing brood-frames, 15½x6½ net comb space, and 32 5-inch Prize sections 3½x5 in.; adapted to furnish standard Langstroth hives as bodies or supers with full space for top packing for safe wintering and promoting work in supers; forming solid double walls with intervening air-spaces tightly covered, and perfect bee-escapes, with all free of cost; manufactured by The A. I. Root Co., and now being exhibited by the inventor at the Atlanta, Ga., Exposition, in the Dade Co., Florida, division in the Agricultural building. One complete sample hive ready for bees, \$2.25; 10 complete in flat with nails, \$15.00.

For present, address

F. DANZENBAKER, City P. O., Atlanta, Ga.

(In responding to this advertisement mention GLEANINGS)

PURE HONEY

At 5½ and 7c per pound, in cans and kegs.

SUPPLIES

at bottom prices. Wax Wanted.

I. J. STRINGHAM, NEW YORK.

105 Park Place.

BEGINNERS.

Beginners should have a copy of the Amateur Bee-keeper, a 70-page book by Prof. J. W. Rouse. Price 25 cents; if sent by mail, 28c. The little book and the Progressive Bee-keeper (a live progressive 28-page monthly journal) one year, 65c. Address any first-class dealer, or

LEAHY MFG. CO., HIGGINSVILLE, MO.

CHAS. ISRAEL & BROS.,

486, 488 & 490 Canal St., Corner Watts St., N. Y.

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Craig's Seedling, Everett's Early, and Freeman, at prices given by A. I. Root.

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White Lilacs

are fragrant and beautiful. Sent by mail. Order early. Small size 25 cents; larger ones 35 cents.

J. S. CASE,

COLCHESTER, NEW LONDON CO., CT.

(In responding to this advertisement mention GLEANINGS)

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